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ABSTRACT

The report describes an 18-month research project at Chanute Air Force Base, Illinois, designed to evaluate the effectiveness of inceptive motivation techniques in Air Force technical training. The first phase of the research identified incentives. The findings were used in the second phase of the research which made these incentives contingent on performance in two of the resident training courses at the base. The first system gave performance based incentives in the courses. The second utilized a system that attempted to give effort based incentives, while the third used financially based incentives. Research results indicated that while secondary performance measures such as amount of remedial instruction, frequency of probations, and frequency of course failures decreased under the incentive program, the primary performance measures of exam scores and speed of course completion did not generally show much improvement. Yet, from a cost-effectiveness viewpoint, even the relatively small (i.e., 8 percent) increase in speed of course completion was meaningful. Attitudes to the program generally improved or stayed the same. The financially based incentive system was found to be the most cost-effective for Air Force technical training. A 150-page appendix provides background information, incentive attractiveness data, questionnaires, manuals, and item statistics. (Author/MW)

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INCENTIVE MOTIVATION TECHNIQUES EVALUATION IN AIR FORCE TECHNICAL TRAINING

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November 1974
Final Report for Period June 1971 – April 1974

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Incentive management or incentive motivation techniques essentially offer valued outcomes for high performance. Such systems have had positive effects on performance in such diverse situations as classrooms, mental institutions, and industry. The purpose of this report is to describe an 18-month research project designed to evaluate the effectiveness of incentive motivation techniques in Air Force technical training. The research was conducted at Chanute Air Force Base near Rantoul, Illinois. The first phase of the research utilized a variety of techniques to identify incentives, as well as to determine their attractiveness and feasibility. These incentives so identified were used in the second phase of the research which made these incentives contingent on performance in two of the resident training courses at the base. The first system gave incentives based on actual performance in the

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courses. The second utilized a system whereby an attempt was made to give the incentives on the basis of effort. The third was identical to the second except that additional, financially based incentives were offered. The results indicated that while secondary performance measures such as amount of remedial instruction, frequency of probations, and frequency of course failures decreased under the incentive program, the primary performance measures of scores on exams and speed of course completion did not generally show much improvement. Yet, from a cost-effectiveness viewpoint, even the relatively small (i.e., 8 percent) increase in speed of course completion was meaningful. Attitudes generally improved or stayed the same under the program. It was concluded that one of the incentive systems utilized in this research was cost-effective for Air Force technical training. Suggestions for improving incentive systems were given.

SUMMARY

Problem

Incentive motivation techniques have been successful in many diverse educational contexts as well as in a number of industrial applications. The objective of this effort was to design, implement, and evaluate an incentive program for Air Force technical training. A field experiment was conducted at Chanute AFB, Illinois; an incentive program was instituted in two technical training courses--the Weather Observer course and the Aircraft Electrical Repairman course. Evaluation was made in terms of feasibility, effect on training performance and attitudes, and cost-effectiveness.

Approach

The approach involved accomplishing three major activities--incentive identification, program design, and experimental evaluation. In the experimental portion of the study, three incentive systems were instituted sequentially: (1) high feasibility incentives awarded on the basis of performance, (2) high feasibility incentives awarded on the basis of effort, and (3) high plus low feasibility incentives awarded on the basis of effort. Appropriate baseline data were collected for comparative purposes, and checks on the manipulations were accomplished as needed. The high feasibility incentives of the first system were principally composed of letters of commendation, time off, avoidance of work details, choice of uniform, and avoidance of marching in formation. These incentives were generally dispensed by means of a point system. By improving his exam scores or decreasing his time to complete an instructional segment, a student was able to earn points which could be spent on the incentives. System 2, in contrast to the first system, did not award the points purely on the basis of performance, but rather, a student was assigned a target score commensurate with his ability. Achievement above this target score was considered to reflect effort, and thus, system 2 can be considered an effort-based system. It was expected that this type of system would be more effective in motivating students of low ability.

Finally, system 3 attempted to raise the overall level of rewards beyond that of the first two systems by making additional incentives available. These incentives were financial in nature and were composed of such items as U.S. savings bonds and various types of gift certificates.

Dependent measures included speed of course completion, exam scores, amount of remedial instruction, number of counseling sessions, washbacks and failures, re-enlistment intentions, job satisfaction, and attitudes toward the Air Force, and student/instructor opinions about the functioning of the incentive systems.

Results

As far as student performance was concerned, system 3 had the

greatest positive impact on the time to complete the Aircraft Electrical Repairman course. Due to the nature of the Weather Observer course, no time savings were possible and none of the incentive systems improved exam scores. However, all three incentive systems resulted in a general decrease in remedial instruction probations, and counseling sessions of the Weather Observer course. Attitude data indicated that the incentive systems produced increases in re-enlistment intentions in both courses. Generally, however, incentive systems had neither a positive nor negative effect on job satisfaction or overall attitude toward the Air Force. Students were slightly favorable toward the incentive systems while instructors were slightly unfavorable, but neither group found the mechanics of the systems overly burdensome.

Conclusions

The data clearly indicate that incentive systems 1 and 2 were simply not effective. This negative finding is interpreted as an indication that the incentives used in these systems, while highly feasible to implement, were relatively weak in attractiveness. During system 3, where a higher level of rewards was available, a partically significant increase in course performance was noted. Cost benefit analysis indicates that the savings were more than enough to offset the cost of the incentive systems. With regard to the lack of positive impact on the Weather Observer course, it is noted that a ceiling effect was operating since average performance in the course was already at a very high level before the incentive program began. Checks on the manipulations indicated that the effort-based system were not fully understood by the students, and since this system requires an awareness of reward contingencies, the present experiment did not provide a fair trial of the concept.

Implications

This study suggests that the following conditions are essential for successful implementation of incentive systems in Air Force technical training:

(1) Incentives must be fairly powerful.
(2) It must not be difficult for trainees to increase course performance.
(3) Self-paced courses are most appropriate for incentive techniques.
(4) More frequent reinforcement should occur.
(5) Both authority figures with whom the student comes in daily contact and his peers should provide positive social reinforcement for high performance.

Preface

The research reported is a product of the efforts of many people. My own research staff, Robert J. Mayo, Carmen M. Sondgerath, Terence Leid, Susan Ramby, Thomas L. Hozman, Richard Flicker, Billie Lou Barrett, and Wanda Newmyer, expended enormous amounts of effort as did the other staff members. Also, J. Ronald Burkett, Technical Training Division, Air Force Human Resources Laboratory project monitor, was a continual source of ideas and encouragement. A great deal of credit goes to the members of the Training Research Applications Branch at Chanute AFB, Illinois, who really made the system work: Capt. Joseph D. Young, Capt, Gary V. Whalen, Capt. Joseph S. Green, T. Sgt. Keith G. Wood, E. Lavern Sanders, and Sgt. Ron R. Irving, and Mr. George Sharf. The senior base personnel were also very helpful, they included Col. A.G. Schuering, Col. John A. Walker, Jr., Col. Lester A. Cloud, Jr., and Col. Robert F. Durbin. Finally, the instructors in the two courses and the squadron personnel worked hard and long on the project.

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I. Introduction

A. History and Statement of the Problem

One of the major goals of the Air Training Command, (ATC) is to improve the efficiency and effectiveness of Air Force Technical training. In support of this,the Air Force Human Resources Laboratory (AFHRL) has effected research on many different aspects of technical training. One significant area of activity deals with the actual motivation of the airmen who are students in technical training courses. No matter how excellent the quality of courses, instruction, and instructional media, the mission of Technical Training Centers will not be fully realized unless students are motivated to the greatest extent possible. Considering the critical importance of student motivation, AFHRL research described here was initiated to explore the effectiveness of a specific motivationsl scheme--incentive motivation--for Air Force technical training.

Incentive motivation, or contingency management as it is sometimes called, is not a new approach to motivation. It has been used with mental patients (Ayllon and Azrin, 1968); delinquent boys (Cohen, 1968); and normal school children (Wolf, Giles, and Hall, 1967) to list just a few. The basic procedures in incentive motivation are really quite simple. One determines what outcomes are attractive to an individual and then gives these valued outcomes to that individual when he performs the desired task or behavior. Thus, for example, it one wishes a mental patient to take a bath, one promises him a pack of cigarettes if he will actually take a bath. If he values the cigarettes, presumably he will take the bath.

While the philosophy behind incentive motivation is simple, actually generating such a system in a complex, real-world situation is much more difficult. Several problems must be considered. One of the first issues is selection of the incentives to use in the program. Possible incentives must be generated, the desirability to the target population assessed, and their feasibility of implementation explored. Once this is accomplished, the actual behaviors to be reinforced must be determined. In Air Force technical training, for example, it must be determined whether incentives should be given for knowledge of course material, speed of finishing the course, appropriate military behavior (e.g., completing assigned duties, attitudes, etc.) or some combination of these. In addition to these steps, a system must be developed for actually dispensing the incentives following appropriate behavior. This includes not only the logistics of the system, but also the psychological aspects. For example, should incentives be awarded to a given percent of a class (e.g., top 10%(; for performance above some cutting point (e.g., above 85% on examinations); should negative incentives be used; etc. Over and above the actual engineering of such a system, it is critical that the effects of an experimental system such as this be carefully evaluated.

Thus, in an attempt to explore the usefulness of the incentive approach to increasing motivation, the following problem was presented: 1) develop an incentive motivation system which is as powerful as possible and which is feasible to use; 2) institute this system with a sample of airmen; 3) evaluate the effectiveness of this system.

To accomplish these objectives, Chanute Air Force Base located near Rantoul, Illinois was selected as the site of the research program. This selection was made largely on the basis of the excellent cooperation and help that Chanute personnel had given to such projects in the past, as well as the interest shown in the project by the staff of the Training Research Application Branch (TRAB) at Chanute. The Air Force Human Resources Laboratory, in consultation with Chanute's TRAB, selected two technical training courses to serve as the experimental group. These two courses, Weather Observer (3ABR25231) and Aircraft Electrical Repairment (3ABR42330), were selected because in combination, they seemed to be representative of many different aspects of technical training. Specifically, the Weather Observer course is a lockstep course containing both male airmen and WAF, while the Aircraft Electrical Repairmen course is a self-paced course containing only males. Furthermore, the ability level required for entrance into the Weather course is fairly high, approximately the level of college students while the requirements for entrance into the Electrical course are much lower.

The research program was started in June, 1971 and was completed in January, 1973. This report is a description of this research effort.

B. Review of the Relevant Literature

There has been a considerable amount of research on the topic of incentive motivation. This research has been done in many different kinds of settings under such names as contingency management, high instrumentality reward systems, token economics, operant conditioning, and behavior modification. The philosophy behind all of these approaches is that if valued outcomes or events are made contingent upon a person engaging in a given behavior, he will be more likely to engage in that behavior. This approach to explaining and changing behavior has its origins in the early work on reinforcement (Thorndike, 1911; Tolman, 1932; Lewin, 1938; Hull, 1943; and Skinner, 1938) and has been applied to many diverse areas of behavior (Rotter, 1954, 1955; Vroom, 1964; Edwards, 1954; Peak, 1955; Atkinson, 1958; Ayllon and Azrin, 1968). While some approaches to incentive motivation are completely atheoretical (e.g. Skinner, 1938), most operate from some more or less well defined theoretical base. We will not discuss these diverse theories here, reviews may be found in Lawler, 1971; DeLeo, 1972; and Campbell and Pritchard, 1973.

More to the point, however, is a discussion of the applications of incentive motivation techniques in various settings. We shall consider these applications in the areas of: 1) industry, 2) educational institutions, 3) deviant behavior, and 4) the military.

1. Industry

Incentive motivation approaches in industry have their roots in the scientific management methods of Taylor (1947). They are based on the assumption that a person will be motivated to work hard if rewards and penalties are tied directly to his performance.

The clearest example of the use of rewards as a means of motivating performance may be found in individual wage incentives. It is also manifest in such practices as promoting individuals on the basis of their merit, and in recognizing and rewarding people for special accomplishments. In addition, penalties are typically made contingent upon falling below some minimal standard of performance. Examples include warnings, reprimands, or even dismissals for violating rules and procedures. In the methodology of this approach it is necessary to define the standards to be employed in the allocation of the rewards and penalties in as objective and measurable fashion as possible. These standards may be formulated in terms of the methods used by the individual when carrying out his job, or in the results which he acheives. It is also necessary to monitor the behavior of the individual to observe the extent to which there standards are attained or adhered to. The final ingredient of the system is the consistent allocation of the rewards and penalties based on the observations of performance (Vroom and Deci, 1972).

One approach to emphasizing the contingency between performance and rewards has been that of operant conditioning (Skinner, 1953; 1969). Homans (1961) has suggested employing operant techniques for job design. He explored the relationship of the frequency of an activity and satisfaction with it to the amount of a reward. He concluded that satisfaction is generally positively related to the amount of reward whereas frequency of an activity is negatively related to the amount of reward the individual has received in the recent past. In order to have both high satisfaction and high activity, Homans suggested that tasks need to be designed in a manner such that repeated activities lead up to the accomplishment of some final result and get rewarded at a very low frequency until jobs before the final result is achieved. Then the reinforcement comes often.

Nord (1969) has outlined a model of individual behavior in organizational settings based on the developmental, behavioristic environmentalism of Skinner (1953) and other learning theorists; e.g., Bijou and Baer (1961) and Reese (1968). Campbell (1971) appears to support such a position and believes that the concepts and techniques of such approaches hold great potential for dealing with many of the problems presently encountered in personnel and industry. The foundation of Nord's perspective is based on certain empirical generalizations adopted from the operant conditioning literature (cf. Honig, 1966; Reynolds, 1968). Nord portrays organizational behavior as an exchange, with the participant being reinforced by an organizational superior. The exchange process is viewed from the managerial perspective. According to Nord, the superior in the superior-subordinate relationship specifies the required behaviors of the subordinates. The behaviors are

a function of what the manager perceives as desirable responses. Following Nord (1969), Jablonsky and DeVries (1972) have formulated a modified operant conditioning model to predict the behavior of an organizational member. Such behavior is seen as a function of the reinforcement contingencies applied by various groups (e.g., peer groups) in his environment (Nord specified only superiors) and of his cognitive assessment of such contingencies.

Support for the orientations proposed by Nord (1969), Campbell (1971), and Jablonsky and DeVries (1972) has been obtained by Yukl, Wexley, and Seymore (1972) who examined the effectiveness of pay incentives under both variable ratio and continuous reinforcement schedules in a simulated job situation. It was found that pay incentives were more effective in motivating increased production when employed with a variable ratio schedule than when used with a continuous reinforcement schedule. The data of Yukl et al. (1972) are consistent with the operant conditioning literature in showing that response rates (performance) are typically greater with a variable ratio schedule of reinforcement that with a continuous reinforcement schedule (Bandura, 1969; Cohen, 1969). Additionally, a series of behavioristically oriented experimental studies of monetary incentives by Toppen (1965a; 1965b; 1965c; 1966) found the following relationships between monetary reinforcement schedule and performance output on a lever-pulling task: (a) larger reward magnitudes and higher reinforcement frequencies led to higher output, (b) piece-rate payment yielded a higher out-put than time-rate payment, and (c) decreasing the magnitude of the reward over time resulted in performance decrement.

In discussing the role of pay in organizations, Lawler (1971) indicates that when pay is contingent on performance, it can motivate performance. Lawler also indicates that satisfaction will be related to performance, and as a result, turnover and absenteeism will be lower among high performers. Further, Lawler notes that tying pay to performance leads to high pay satisfaction and finally, it can increase the importance of pay.

A characteristic of most incentive wage programs is payment commensurate with performance (Marriott, 1957). The best-known individual incentive program is that of the piece-rate in which the pay is contingent on the number of units produced by the worker. There is considerable evidence that implementation of such plans usually results in greater output per man-hout, lower unit costs, and higher wages in comparison with outcomes associated with straight time payment system (e.g., Dale, 1959; Marriott, 1957; Roth, 1960; Toppen, 1965c; Viteles, 1953).

At an Australian top management conference (Institute of Industrial Management, 1946), members were asked about their experience with wage

incentives for direct production workers. They reported earnings of from 20 to 25 percent above ordinary rates, considerable increases in performance ranging from 18 to 167 percent in five different industries, a tendency for accidents to decrease, quality to be kept up to standard, and maintenance of plant improved.

In the Western Electric studies, Roethlisberger and Dickson (1939) report that when workers were placed on a piece-rate payment plan production increased 12.2 percent. In another investigation, Wyatt (1934) switched employees from a fixed weekly pay system to a competitive bonus system designed to make pay contingent on performance. The effect of the bonus system was a 46 percent production increase. Fifteen weeks later a straight piece-rate program was instituted which resulted in an additional production increase of 30 percent which remained for the twelve remaining weeks of the investigation. Burnett (1925) hired subjects for eight weeks for which they received an hourly pay rate. Subjects were then placed on a piece-rate based upon their hourly output for the next five weeks. Adoption of the piece-rate resulted in an average increase in output of 20.2 percent by the fourth week.

In an investigation by Atkinson and Reitman (1956) one group of subjects received achievement-arousing instructions for task completion with no financial reward being offered. A second group of subjects were given similar instructions but were told that $5 would be awarded to the best performer. The data demonstrated that the offer of the financial incentive led to increased performance in general, but particularly among people who were low in achievement motivation.

Other studies, conducted under controlled conditions (Jorgenson, Dunnette, and Pritchard, 1973; Pritchard and DeLeo, 1973; Pritchard and Curts, 1973), have also demonstrated increases in performance under financial incentive conditions.

In summary, it would appear that there is a substantial amount of evidence supporting the proposition that tying individual performance to financial rewards results in increased motivation and performance. Even the more conservative investigations suggest that individual incentive plans such as the piece-rate result in a 10-20 percent increase in productivity (Lawler, 1971). Similar findings have been noted in several reviews and discussions of various monetary incentive programs (Marriott, 1957; Lytle, 1942; Balderston, 1930; Dickinson, 1937; Reitinger, 1941).

The effectiveness of incentive plans in general depends upon the employee's knowledge of the relation between performance and earnings (Opsahl and Dunnette, 1966). In Vroom's terminology the valence of effective performance increases as the instrumentality (contingency) of effective performance for the attainment of money increases (Vroom,

1964). Support for such a proposition is extensive (Atkinson, 1958; Atkinson and Reitman, 1956; Kaufman, 1962; Georgopoulos, Mahoney, and Jones, 1957; Lawler and Porter, 1967; Porter and Lawler, 1968; Gavin, 1970; Shuster and Clark, 1970; Pritchard and Sanders, 1973; DeLeo, 1972; Galbraith and Cummings, 1967; Evans, 1970; Hackman and Porter, 1968; Jorgenson, Dunnette, and Pritchard, 1973; Graen, 1969; Avery and Dunnette, 1970). For example, Georgopoulos et al. (1957) found that workers who perceived higher personal productivity as a means to increased earnings performed more effectively than workers who did not perceive such a relationship. Campbell (1952) working with incentives administered on the basis of the total output of the working group, showed that one of the major reasons for lower productivity in large groups under group incentive plans is that workers often to not perceive the relation between pay and productivity as well as they do in smaller groups. Lawler (1964) found that 600 managers perceived their training and experience to be the factors of paramount importance in determining their salary--not their performance on the job. However, a separate analysis of the most motivated managers confirmed that these managers saw that high pay was contingent on good job performance.

The results of an extensive investigation of managerial personnel conducted by Porter and Lawler (1968) indicate that the more pay is seen to depend on performance factors, the more motivated managers will be to perform their jobs effectively. Porter and Lawler (1968) examined attitudes toward pay as they related to the performance of managers in industrial and governmental organizations. They compared the performance of the third of their sample that perceived pay as a probable outcome of performance with the third that saw little relation between performance and pay. Performance (as rated by the subject and their superiors) was significantly higher for the former group. Galbraith and Cummings (1967) have obtained similar results using production workers from three different companies and Evans (1970), studying worker choices of high and low performance levels, found supporting data. In two very dissimilar types of organizations-- a hospital and a public utility-- Evans (1970) found that an outcome was highly valued, and if high performance was viewed as eventuating in that outcome, performance tended to be higher. Porter and Lawler (1968) add that " . . . it would seem that organizations should be quite concerned with the psychological impact of the raises they give. Companies that are content to give raises that are not seen as a form of recognition or reward may be missing a potent motivational inducement for better job performance as well as a chance to satisfy some of their manager's more important needs" (p. 177).

Another investigation by Schneider and Olsen (1970) has made comparisons between two (hospital) organizations on the basis of their reward systems. In one hospital, rewards were contingent on effort and performance with only minimum annual or biennial increases in salary for tenure. In the other hospital, rewards were not based on performance.

The hypothesis that effort would be greater under a reward system that explicitly rewards effort with valued extrinsic rewards than under a system that does not reward effort with extrinsic rewards was supported. Thus, the difference in actual reward policies between the two organizations resulted in differential effort.

Overall, the literature from the industrial setting clearly indicates that incentive motivation techniques can have a strong, positive effect on performance.

2. Educational Setting

Lipe and Jung (1971) have summarized a number of research efforts in educational environments that have shown the importance of the contingency between the desired behavior and various reinforcements. For example, Risley and Hart (1968) working with disadvantaged black pre-school children, used fruit, cookies, and sandwiches to develop a correspondence between the children's visualized accomplishments and their actual behavioral accomplishments by making these food reinforcers contingent on the desired behavior. Additionally, Chadwick and Day (1970) and Day and Chadwick (1970) employing 30 black and Mexican-American students with severe behavioral disorders as subjects, found when food and toys were made contingent on good social and academic behavior then these behaviors improved markedly. The reinforcers included the school-furnished lunch, candy, gum, goldfish, clothes, jewelry, etc.

Furthermore, Benowitz and Bussee (1970) utilized boxes of crayons as reinforcers for good performance on spelling tests. The subjects were black children attending two large urban ghetto schools. The teachers merely told the students in their classes that "If you do very well in your spelling test this week, you will be given a nice prize, a box of crayons." The teachers made this announcement each day during the experiment. The results indicated that spelling scores did indeed improve when the crayons were made contingent on performance.

Azrin and Lindsley (1956) effected increased cooperation between children by reinforcing that behavior with jelly beans. Keister and Updergraff (1973) modified children's undesirable reactions to failure by having them complete a series of puzzle and block-building tasks of graduated difficulty. Reinforcement was inherent in the act of working on and solving the game-tasks.

In several studies attempts have been made to modify or eliminate specific unwanted childhood behaviors. Allen, Hart, Buell, and Wolf (1964) dealt with self-isolating behavior of a nursery school child by withholding teacher attention, assumed to be a positive reinforcer, until peer interaction was initiated by the child. Solitary play or socialization with teachers evoked withdrawal of teacher attention. The desired effect, spontaneous and frequent peer interaction, occurred rapidly and was maintained throughout the school year. A low rate of physical activity in a pre-schooler was changed to a normal rate by Johnston, Kelley, Harris, and Wolf (1966) through systematic social reinforcement of active behavior. Baer (1962), in making cartoon-watching contingent upon no thumb sucking, was able to control the thumb-sucking rate. With the systematic application of reinforcement principles, regressed crawling in a nursery school child was eliminated by Harris (1964). In this investigation

adult attention was immediately given as a consequence of desired behavior, and withheld as a consequence of undesirable behavior. Hart and Allen (1964) employing social reinforcement contingent on desirable behavior were able to reduce excessive crying. Zimmerman and Zimmerman (1962) reported that various kinds of inappropriate or unproductive classroom behaviors, such as tantrums, disappeared when there were totally ignored and whenever appropriate and productive behavior was immediately reinforced by positive teacher recognition.

Bandura (1969) describes a study by Staats and his associates (Staats, Staats, Schutz, and Wolf, 1962) who conducted a rather elaborate study demonstrating the effectiveness of reinforcers in teaching school children to read words and then combine them into short sentences. His subjects consisted of pre-school age children who worked on programmed materials. In the baseline condition the subjects received verbal reinforcement from the experimenter. No other reinforcerments were given. In this condition the children worked at the reading task for 15 or 20 minutes and then became bored and asked to leave. At this point, after the children no longer wished to remain in the experimental setting ,extrinsic reinforcers were utilized. These consisted of tangible rewards such as trinkets, candy, etc. When these extrinsic reinforcements were made contingent on reading performance the results indicated that the children worked at the reading for 45 minutes with apparent enthusiasm and also participated actively in extra sessions.

In another condition, using an independent group of similar subjects, two sessions were run utilizying the positive extrinsic rewards. As before, the subjects performed well in these sessions. That is, they attended closely to the task material and worked actively at mastering the new reading material. After these two reinforced sessions, the rewards were discontinued until the subjects stopped working on the task. The results showed that once the positive reinforcers were withdrawn the children's participation, attention, and reading achievement rapidly deteriorated. In another study Staats (1965) demonstrated that even very young children will engage in complex learning tasks over extended periods of time if the reinforcements are appropriate.

In reference to the two Staats studies Bandura (1969) comments:

> "The marked changes in positive responsiveness noted in the above studies illustrate how low persistence in academic tasks resulting from inadequate incentives is often erroneously attributed to basic deficits in the child in the form of short attention span or low frustration threshold. Levin and Simmons (1962) also found that low persistence in hyperaggressive boys, which is generally interpreted in clinical theory (Redl and Wineman, 1951) as reflecting high impulsivity, weak ego control, and generalized inability to tolerate frustration, may in fact be due to inadequate positive reinforcements. When boys were merely praised for appropriate responses, they rapidly ceased responding sometimes in a highly disruptive fashion by tossing the material out of the window or by climbing on file cabinets. On the other hand, when food was used as a reinforcer, the boys continued to work at the task even though reinforcement was progressively reduced and eventually discontinued altogether.

> The foregoing studies, and the results obtained by other investigations (Slack, 1960; Whitlock and Bushell, 1967) indicate that extrinsic incentives are often essential, particularly during early phases of behavioral change programs." (p 277).

Additionally, a number of projects in special school, educational laboratories, and institutions for the retarded have involved behavioral analysis, programmed contingencies, and stimulus control as an educational package.Anumber of reviews of research on these methods are available (see, e.g., Brown and L'Abate, 1969; Morrill, 1961; Lumadaine and Glaser, 1960).

One type of incentive motivation system which has been utilized in educational settings is the token economy. Such a system essentially gives some tangible token (e.g., metal or plastic) for behaviors to be reinforced. The person can then use these tokens to "buy" reinforcers such as engaging in valued activities, food, special privileges, etc. Following the general paradigm of earlier animal studies (Wolfe, 1936; Collesm 1937; Smith, 1939; Kellehr, 1958) token systems were employed with mental patients (Ayllon and Azrin, 1968) and children.

Staats, Finley, Minke, Wolfe, and Brooks (1964) were one of the first groups to establish an extensive reinforcing system in which tokens were exchangeable for a wide variety of edibles and toys. A child selected an item for which he would work before beginning a training program. These experiments demonstrated that a token reinforcement system could maintain reading behavior for four-year-old children for long periods of time. The experiment of Staats et al. (1964) was noteworthy because it demonstrated that with a token system and a variety of exchange items one is no longer dependent upon the power of a single backup reinforcer; e.g., one is not limited to giving candies whose power depends upon the momentary deprivation state of the child.

In general, according to O'Leary and Drahman (1971) tokens should have the following properties: (a) their value should be readily understood; (b) they should be easy to dispense; (c) they should be easily transportable from the place of dispensing to the area of exchange; (d) they should be identifiable as the property of a particular individual; (e) they should require minimal bookkeeping duties for the teacher; (f) they should be dispensible in a manner which will not divert attention from the primary target behavior; (g) they should be despensible frequently enough to insure proper shaping of desired behavior.

With regard to the classroom environment, the effectiveness of token programs has been evaluated employing four dependent measures; decreases in disruptive behavior, increases in study behavior, increases in academic achievement, and changes in other behavior(s) not selected for primary modification but which may change as a function of token program, for example, attendence.

O'Leary and Becker (1967) introduced a token program in order to decrease disruptive behavior in a classroom. The implementation of such a program resulted in a decrease in average disruptive behavior (talking, noise, pushing, eating) from 76% in the base period to an average of 10% during the 2-month period. Ancedotal evidence suggested that the children's appropriate

behavior generalized to other school situations. More recently, numerous investigations have reported significant decreases in disruptive behavior resulting from similar token reinforcement programs (e.g., Kuypers, Becker, and O'Leary, 1968); Martin, Buckholder, Rosenthal, Tharpe, and Thorne, 1968; O'Leary, Becker, Evans, and Saudargos, 1969).

Several studies have shown token reinforcement situations to increase studying behavior (Bushell, Wrobel, and Michaels, 1968; Broden, Hall, Dunlap, and Clark, 1970; Walker, Mattron, and Buckley, 1969). Broden, et. al. (1970) established a token program in a class of 13 seventh - and eighth-grade students who were several years behind in at least one academic area. Baseline data obtained during a general reading class indicated that the rate of study behavior was 29%; however, when a token reinforcement situation was in effect study behavior rose to 74%.

Increases in academic achievement have also resulted from token reinforcement programs (e.g., Birnbrauer, Wolf, Kidder, and Tague, 1965; Hewett, Taylor, and Artuso, 1969; Clark, Lachowicz, and Wolf, 1968; Wolf, Giles, and Hall, 1968; Tyler and Brown, 1968).

Ayllon and Azrin (1968) have presented a number of valuable rules to guide the design and conduce of token economies, together with the laboratory and clinical research on which they are based. Schaefer and Martin (1969) similarly cover many of the practical aspects of token systems.

As with the industrial literature, the research in educational settings, especially with token systems, has demonstrated the positive effects of incentive motivation procedures.

3. Deviant Behavior

Incentive motivation techniques have been employed for the modification of deviant behavior in both adults and children. The results have been impressive over a wide variety of symptoms. In a review article Brossberg (1964) notes successful use of behavior therapy in the treatment of phobic reactions, generalized anxiety reactions, speech disorder, combat stress, and schizophrenics.

Additional, Allyon and his colleagues have investigated a variety of reinforcement procedures that have been used to modify behavioral disorders in populations of adult psychotics housed in mental institutions. For example, Allyon and Michael (1959) instituted a program at a large mental hospital in which nurses and oderlies were trained to selectively administer reinforcers (primarily food and social attention) to bring about desired changes in the behavior of a Adult psychotic. Using a similar procedure, Allyon (1963) was also able to eliminate a number of undesirable behavior patterns symptomatic of psychopathology. More specifically, Ayllon and Houghton (1964) were able to influence verbalizations of psychotic patients and Ayllon, Houghton, and Osmond (1964) were able to markedly allivate chronic anorexia.

Further, research endeavers by Allyon and Azrin (1965), (1968), extended the scope of the previous research efforts by employing a greater and more varied number of positive reinforcers which were distributed on both individual and group basis. It was found that reinforcements distributed on a group basis may be of considerable importance since such a procedure involves peer reinforcement which can be beneficial in that a reduced number of trained observers are needed.

Bandura (1969) has summarized a number of investigations in which deviant behavior in children has been altered due to certain reinforcement contingencies. Allen, Hart, Buell, Harris, and Wolf (1965), Brawley, Harris, and Wolf (1965), Brawley, Harris, Allen, Flemming, and Peterson (1969), and Johnston, Buell, Harris, and Wolf (1964) have all successfully employed behavior modification techniques to test extreme withdrawl. Additionally, using similar reinforcement principles Harris, Johnston, Kelly, and Wolf (1964) were able to effectively treat regressive crawling, and Allen, Henke, Harris, Baer, and Reynolds (1967) and Hall, Lund, and Jackson (1968) were able to alter hyperactivity and aggressive behavior. Walker and Pollio (1968) have treated overdependency and depression feelings in children by the use of various reinforcement contingencies.

Bandura (1969) also reports numerous investigations in which reinfocement principles have been employed to successfully treat the following disorders: mutism (Sherman, 1965; Straughan, 1968); antisocial behavior (Coleman and Baker, 1968); autistic behavior (Lovaas, 1968); chronic anorexia (Bachrach, Orwin, and Hoch, 1965; Leitenberg, Agras, and Thompson, 1968), school phobias (Patterson, 1965); and socially disruptive behavior (Zimmerman and Zimmerman, 1962). Lastly, treatment of scitzophrenic subjects using reinforcement principles has been known to result in greater changes in interpersonal behavior than more conventional treatment methods (King, Armitage, and Tilton, 1960; Peters and Jenkins, 1954; Schaefer and Martin, 1966).

Concerning mentally retarded children, reinforcement principles have been utilized to produce changes in various self-care skills (Byou and Orland, 1961; Ellis, Barnett, and Pryer, 1960; Whelan and Haring, 1966). Specifically, retarded children have been toilet trained (Giles and Wolf, 1966; Hendziak, Mowier, and Watson, 1965) taught to clothe themselves, taught to use utensiles to feed themselves, instruction in personal hygiene, and to respond to spoken orders and directions (Bensberg, Colwell, and Cassell, 1965; Girardeau and Spradlim, 1964, Minge and Ball, 1967; Roos, 1965).

Again, as in the case of industrial settings as well as educational settings incentive motivation procedures involving the consistent application of positive reinforcement have been successful in changing deviant behavior. A variety of behaviors have been investigated in a variety of settings, and the clear implication is that such techniques can be quite effective. The question remains, however, of whether such incentive motivation procedures would be effective in military settings. It is to this question we now turn.

4. Military

Two studies of incentive motivation techniques have been reported which were done in military settings. One was done by Cassicith (1964). The task in this study was a 56-lesson, self-paced course of typing instruction in which the criterion was time to finish the course. The experimental group was rewarded by points contingent on successful completion of three or more units on a given day. Rewards used were movie passes or time off in varying amounts. Points could be exchanged immediately for an inexpensive reward--the movie pass (costing three points) or saved for more costly rewards such as a three-day pass (costing eight points). Results showed that incentives

were effective--but only for persons of high initial typing ability. For lower-ability trainees there were no significant differences between contingency management and standard classes.

A second investigation (Datel and Legters, 1970-71) and Datel (1970) has demonstrated the effaciousness of employing a modified contingency management program, the Merit-Reward System (MRS), with Army basic combat trainees.

The objectives of the MRS were to improve the performance of the soldier-in-training while simultaneously raising morale and creating a better attitude toward the Army. Essentially, the program involved the allocation of merits (tokens) on the basis of performance rendered. These merits, or tokens, in turn could be employed to purchase certain privileges and promotions; e.g., 3-day pass, promotion to E-2. Results indicated a significant increase in trainee morale relative to pre-MRS measurements. Additionally, in terms of attitude change a gradual positive climb in reenlistment intentions was noted, reflecting more favorable global attitudes toward the Army. Performance and training measures remained stable despite the cut-back to a 5-day training week experienced during the investigation.

C. Implications of the Literature for the Problem

It is clear from the volume of literature just presented that incentive motivation procedures have been effective in many different situations for many different kinds of behavior. What may not be quite so clear is that in some situations they have not worked quite so well. For example, Campbell et al., 1971 discusses situations where piecerate incentive plans have failed in industry. Also, one wonders how many failures of behavior modification and token economy systems simply have not reached the literature. Finally, the two studies done in military settings resulted in far from overwhelming effects on performance.

Obviously, the issue is not whether incentive motivation techniques work or not, but under what conditions do they work and under what conditions do they not work.

Specifying these conditions is clearly of great help in establishing the present incentive motivation system or any other such system. Fortunately, the literature gives us several specific indications of the conditions that should facilitate the effectiveness of an incentive motivation system. These are listed below.

1. The incentives in the system must be powerful; i.e. Attractive to the people in the system. This principal has several implications.

    a. Incentives must be carefully sought out and identified as highly attractive.

b. Since there are individual differences in the attractiveness of different incentives, allowing people in the system to choose their own incentive from a variety of incentives should increase the attractiveness of the incentive package.

c. The greater the proportion of all positive outcomes in the person's environment that are subsumed under the incentive system, the more powerful it will be.

2. The relationship between performance of the desired behavior and the attainment of the incentive must be high. This implies:

   a. The incentives must be applied consistently by the system.

   b. The person in the system must perceive that the incentives are applied consistently.

   c. The rules for the attainment of the incentives must be completely clear to those administering the system and those actually in the system.

3. The relationship between effort to attain the desired behavior and the actual attainment must be high. This implies:

   a. It must be possible for all people in the incentive system to actually do the behaviors required.

   b. The people in the system must perceive that it is possible to do the behaviors required.

   c. The people in the system must perceive that variations in controllable aspects of their behavior will result in variations in their level of performance and, ultimately, their rewards.

4. The behaviors required must be clearly specified, as well as being readily measureable.

5. Once the incentive system is operational, great caution should be exercised in decreasing the magnitude of the incentive for a given behavior.

6. The more frequent the reinforcement (i.e. the smaller the unit of performance to be reinforced) the stronger the system.

7. The behaviors to be reinforced by the system should also be reinforced by any significant others in the person's environment.

If these conditions can be met in an incentive motivation system, it is almost assured that the system will work. However, in a setting such as Air Force technical training all of these conditions cannot be met. The problem, therefore, is to build in as many of these features as is possible, and then to assess whether such a system results in increases in performance and attitudes in Air Force technical training setting.

II. Procedures and Methods

A. Overview

The research program consisted of two broad phases. The first phase dealt with the identification of relevant incentives to be used in the program, This was accomplished primarily by content analysis of an extensive series of interviews, having airmen rate the resulting incentives for attractiveness, and selecting for final use those incentives which were both attractive and feasible.

The second phase was the actual implementation of the incentive system in two technical training courses. Three separate incentive systems were tested. The first awarded incentives on the basis of the actual performance a student exhibited in the training course. The second attempted to award incentives on the basis of the effort he put into the course. The third awarded incentives on the basis of effort and utilized not only the incentives used in the first two systems, but also an additional set of more valuable (less feasible) incentives.

The nature of the experimental design was such that the effects of the various incentive systems could be assessed while controlling for such factors as cyclical trends in course performance, Hawthorne effects, and fluctuations in student ability. The effectiveness of the incentive system was evaluated along a series of performance and attitudinal variables such as scores on exams, speed of completion of course, frequency of course failures, frequency of remedial instruction, self and instructor ratings of effort, student evaluations of the technical training course, student satisfaction with training, and attitudes toward reenlistment.

We shall now turn to a detailed discussion of the exact procedures and methods used in each phase.

B. Incentive Identification Phase

1. Obtaining the Preliminary Incentive Material

It was considered absolutely essential that every possible attempt be made to generate as complete a list of incentives as possible. The philosophy was to gather raw material from every available source realizing that even tough overlap would be great, the value of isolating even one additional usable incentive was very high. Moreover, it was felt that a complete listing could have potential usage outside the

current project.

In order to obtain this listing, various strategies were employed ranging from group and individual interviews, through role playing, open-ended questionnaires, and reviewing the literature on basic needs. Furthermore, everyone who could conceivably provide any information was consulted, including senior officers, military and technical training instructors, students, and recruiting officers.

Specifically, the following methods were used:

a) Senior Officers

Interviews were conducted with the two department heads responsible for the target courses. Their civilian counter-parts and immediate subordinates also attended these meetings. The purpose of the project was explained and these individuals were asked about incentives they felt would be effective for the program. Similar interviews were also held with the Technical School Commander and his immediate subordinates, as well as with the Student Group Commander.

b) Instructors

The instructors in the two target courses were also consulted in detail. It was felt that their help would be extremely valuable. To maximize the chances of their cooperation they were briefed in large groups regarding the nature of the project. Following these mass briefings, a series of meetings was set up with groups of 5-10 instructors. These meetings lasted from one to two hours and consisted of discussions of potentially useful incentives, as well as incentives which the instructors had informally used in the past. The discussions in these meetings were tape recorded and incentives which had been mentioned were later transcribed.

One of the goals of these meetings was to meet with as many of the instructors as possible. Due to their excellent cooperation we were fully successful at this, ultimately interviewing more than 80% of the instructors from the two target courses.

c) Students

All in all, between 300 and 400 students at Chanute AFB participated in the incentive information gathering process. Many of these students (approximately 200) were from courses outside the two target courses. The remainder were WAF and male airmen from the target courses.

c1) Conventional Interviews: Students

The first information gathering attempt consisted of group interviews of 5 to 10 airmen similar to those held with senior officers and

instructors. Although the exact nature of the project was not explained, the students were told that we were interested in what they liked and disliked about technical training. These "conventional" interviews did not meet with a great deal of success. Although the students appeared to enjoy them, these interviews were not producing the kind of information we needed to develop incentives. Consequently, this technique was abandoned and other procedures tried.

c2) Student Role Playing

Following our lack of success with the conventional interview the next procedure tried was role playing. Two role playing situations were used. The first consisted of having the members of the group (usually 5 airmen) play the role of the top management of the base. After they were instructed in the nature of role playing and given a brief practice session, one airmen was chosen to play the role of the base commander and the other members were to be his subordinates. Their job was to suggest what should be changed or improved at the base.

Although this simulation met with better success than the conventional interview, we were still dissatisfied. Consequently, we tried a second role playing exercise. Groups of 5 to 6 airmen received the same orientation and practice period as before, but this time one member, the most verbally fluent member, was chosen to play the role of a recruiting sergeant. A second airman was chosen to play the role of a potential recruit. The recruiter's job was to convince the potential recruit about the merits of joining the Air Force due to the great benefits and enjoyable experiences awaiting him at Chanute AFB. The potential recruit was to ask questions; probe for more information, etc. The remaining members of the group were to act as observers and friends of the potential recruit who all had gone through Air Force training.

The recruiting went on for approximately one-half hour. After that time, the potential recruit "returned to his friends." They were to complete the picture, supplying information about Chanute AFB that the recruiter failed to mention. The rationale for this procedure was that the recruiter should mention positive things that could potentially be used as incentives while the man's friends should supply negative things.

This procedure worked quite well in that several useful incentives emerged. The airmen seemed to enjoy the exercise, and were quite involved with the task.

c) Financial Incentives: Students

One additional procedure was also tried which, at least in terms of quantity, was the most successful of all. Groups of about 10 airmen were told that we were interested in what could be used as positive and

negative incentives in technical training. The idea of positive and negative incentives was carefully explained. At that point, the member of the research team passed out quantities of blank paper and then drew a $5 bill from his pocket. He announced that the person writing down the largest number of incentives would receive the $5.00. After about 45 minutes the incentives were counted and the money was awarded. Large quantities of incentives were generated using this process.

d) Recruiting Officers

A fourth source of information regarding incentives came from interviews with recruiting officers. Members of the research team visited recruiting officers in several cities both in pairs and singly. In some cases the research team member explained the project and solicited information, while in other cases the investigator posed as a potential recruit. A female member of the research team also posed as a potential WAF recruit.

e) Exploring Basic Needs

The previous methods of incentive generation all dealt with going from a specific piece of information to a more general incentive. It was felt that it would also be profitable to go in the reverse direction; i.e., from general to specific. Consequently, a list of basic needs was generated such as autonomy, security, achievement, affiliation, etc. and an attempt was made to derive incentives that would satisfy those needs.

f) Examination of Frequently Mentioned Incentive Categories

Several categories of incentives were mentioned very frequently. Those included hair, presence of females, transportation, food, and entertainment. A special attempt was made to generate incentives that dealt with these frequently mentioned incentive categories.

g) Categorization of Incentives

Finally, to ensure that various different types of incentives would be present in the final list, the incentives were broken down into short term versus long term, high feasibility versus low feasibility, and intrinsic versus extrinsic. Where gaps seemed to appear an attempt was made to increase the number of incentives in that category.

2. Selection of Incentives for Further Study

At this point a large amount of raw material had been generated which varied from complaints to quite usable incentives. A partially edited list of this raw material is presented in Appendix A. Some duplication of items has been removed from this raw material, but much of it remains just as it was transcribed from tape recordings, questionnaires, or notes made during interviews.

The next stop was to cull, edit, and generally prepare a list of incentives for further study. Incentives were written and rewritten, duplicates dropped, items combined, etc. This procedure resulted in a list of 99 potentially usable incentives. These are presented in Appendix B.

Until now, however, little attention had been given to the feasibility and/or attractiveness of the resulting 99 incentives. The next step consisted of actually selecting those incentives that seemed to have some reasonable chance of being implemented and also appeared to have some positive or negative value to the airmen. The first step in the procedure was done on a subjective basis. This procedure resulted in a final list of 70 incentives for further study. These incentives are listed in Table 1.

3. Measuring the Attractiveness of the Incentives

A critical part of any incentive motivation program is utilizing incentives which have high value of utility to the people in the system. Thus, it was important to evaluate the attractiveness of the incentives to the airmen. While one could argue that the larger the number and variety of the incentives, the more powerful the system, administrative feasibility demands that the number of incentives not be so large as to be unmanageable. Therefore, given the constraints of the situation, it becomes double necessary to use those incentives which are most powerful.

To measure attractiveness of the incentives a questionnaire was developed. This questionnaire measured attractiveness two ways. One method employed a 17-point Likert scale which is reproduced below:

8---Extremely attractive. This is one of the very best things I can imagine happening to me.

7---

6---Highly attractive. I would be very pleased if this happened, but its not the most attractive thing I can think of.

5---

4---Moderately attractive. I would like it if it happened, but it is not highly attractive.

3---

2---Slightly attractive. I would prefer that this happened, but it would not bother me much if it did not.

(Scale continued on next page)

1---

0---Neither attractive nor unattractive. I would not care whether this happened or not.

-1---

-2---Slightly unattractive. I would prefer that this did not happen, but it wouldn't bother me much if it did.

-3---

-4---Moderately unattractive. I would dislike it if it happened, but it wouldn't be to terrible.

-5---

-6---Highly unattractive. I would dislike it very much if this happened, but there are worse things I could think of.

-7---

-8---Extremely unattractive. This is one of the worst things I can imagine happening to me.

The airmen rated each of the incentives on this scale.

A second method of measurement was also used. This technique consisted of having the airmen place a dollar value on each of the incentives. They were instructed to imagine that the Air Force had given them an extra $100 which could only be spent to purchase the incentives; it could not be saved. Any part or all of the $100 could be spent on any single incentive. Moreover, the $100 was usable over and over again; that is, it did not have to be split up over the existing desirable incentives. With negative incentives the airmen were asked to indicate how much they were willing to pay to "get out of" the disliked activity.

These two methods of measurement were employed rather than one for several reasons. First, it was felt that using two measures would result in a more reliable measure of overall attractiveness than any single measure. Second, each had its advantages. We felt the Likert scale would be easier for the airmen to comprehend, but the money would result in data more closely approximating a ratio scale.

Order of presentation of the two methods of measurement was counterbalanced so that half the respondents received the Likert scale followed by the money scale while the order was reversed for the other half of the respondents.

The questionnaire was given to as many male and female airmen in

TABLE 1

Total Weather and Electrical (N-264)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
1. Being able to wear any uniform you desire to school (for example: 1505's or class A) for one day.	2.44	3.08	3.66	14.19	-.43
2. Being able to wear any uniform you desire to school (for example: 1505's or class A) for one week.	2.90	3.25	6.37	17.02	-.26
3. One free admission ticket to local sports events (e.g., football, games, drag races, horse races etc.)	3.52	2.84	3.16	14.16	-.22
4. Getting one free ticket to the base movie (includes popcorn and soft drink).	3.33	3.04	2.50	10.93	-.28
5. Being able to ride a bus to school for one day rather than marching.	3.51	3.00	3.43	15.15	-.22
6. Being able to ride a bus to school for one week rather than marching.	4.57	3.21	9.86	23.50	.19
7. Choice of "Stateside" or "Overseas" Assignment.	7.01	2.09	62.45	41.36	2.21
8. Choice of regions of United States (e.g., East Coast, Midwest, etc.) where base of assignment is located.	7.01	2.02	61.99	41.09	2.20

TABLE 1 (cont.)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	STANDARD	MEAN ATTRACTIVENESS
9. Special award for outstanding performance sent to new Commanding Officer.	3.49	3.41	14.07	29.23		.08
10. Special award for outstanding performance sent to parents.	3.57	3.55	15.01	29.74		.13
11. Getting a 20% reduction in the price of transportation to and from Indianapolis.	2.09	3.14	5.66	18.64		-.45
12. Getting a 20% reduction in the price of transportation to and from Chicago.	3.91	3.07	11.94	23.05		.11
13. Getting a 20% reduction in the price of transportation to and from St. Louis.	2.75	3.21	7.92	20.87		-.25
14. Getting paid an extra $20 every two weeks.	6.86	2.26	46.25	42.29		1.72
15. Putting your class record in your permanent service file.	1.87	3.43	4.65	25.03		-.53
16. Going on a field trip one weekend to see your specialty at work on another Air Force base.	3.90	3.32	14.79	28.97		.19
17. Getting a 20% discount on six-packs of beer.	2.87	3.64	6.84	24.18		-.25
18. Getting a free case of beer.	3.52	3.93	6.50	25.26		-.13

TABLE 1 (cont.)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
19. Receiving quarters allowance in order to live off base for the last three months of your training course.	5.38	3.00	38.98	41.17	1.19
20. Receiving quarters allowance in order to live off base for one month.	4.90	3.06	26.51	36.39	.74
21. Getting free green fees (golf).	1.46	2.62	4.67	15.87	-.61
22. Getting reduced price for green fees (golf).	1.31	2.50	3.49	14.35	-.68
23. Getting a promotion (2nd stripe) at completion of your course.	6.26	2.42	38.31	38.61	1.36
24. Receiving one day additional leave at the end of your course for each 5 days you finished early.	5.53	2.88	28.87	33.88	.94
25. Choice of base of assignment from those available at the end of your course.	6.99	2.13	59.40	42.56	2.12
26. Receiving the Good Conduct Medal.	3.96	3.52	19.76	31.60	.34
27. Having your choice of roommates.	4.50	3.00	22.32	31.81	.53
28. Having your own private room.	5.19	3.32	35.63	40.27	1.06
29. Having your choice of being on A or B shift.	4.92	2.97	27.16	34.76	.76

TABLE 1 (cont.)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
30. Being singled out for special recognition in front of other students.	1.16	3.33	3.73	24.76	-.70
31. Having your name appear on the list of "Top Students" posted in squadron area.	2.40	3.63	9.50	24.68	-.28
32. Having extra duty on a Saturday.	-5.61	4.19	-30.28	38.72	-3.11
33. Having a mandatory study period on one weekday evening.	-3.45	4.44	-18.41	31.86	-2.32
34. Having a mandatory study period every weekday for one week.	-4.35	4.65	-31.28	39.10	-2.88
35. Being excused from squadron duty (e.g., cut grass, shovel snow, etc.) for one day.	3.58	3.49	4.71	32.98	-.17
36. Being execused from squadron duty (e.g., cut grass, shovel snow, etc.) for one week.	4.26	3.58	6.25	38.66	.03
37. Not having to go to morning chow for one day.	1.47	3.24	2.07	17.53	-.68
38. Not having to go to morning chow for one week.	1.59	3.55	3.69	22.96	-.61
39. Getting a three day pass during the week (e.g., Wednesday, Thursday, Friday.)	5.72	3.04	39.06	43.30	1.27

TABLE 1 (cont.)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
40. Getting a three day pass over a weekend during course.	5.64	2.92	28.96	38.58	.97
41. Getting a Straggler's Pass for one day.	3.49	2.97	8.09	25.99	-.09
42. Getting a Straggler's Pass for one week.	4.28	3.17	14.78	29.60	.27
43. Having your mileage restricted to 50 miles for one weekend.	-5.31	4.31	-44.78	41.99	-3.46
44. Being chosen as a special helper for students who are having trouble with material.	.97	3.77	.84	28.99	-.63
45. Recieving a special insignia for high effort.	2.54	3.56	11.53	24.26	-.19
46. Being able to have beer in your room.	3.48	4.05	15.97	36.34	.13
47. Being allowed to use one week of your leave sometime during the course.	3.96	3.83	23.74	39.42	.46
48. Being able to leave class one hour earlier for one day.	3.11	3.13	6.59	19.45	-.21
49. Being able to leave class one hour earlier every day for a week.	3.47	3.4[illegible]	11.52	25.85	.01
50. Being able to sleep late for one day, if you were on B shift.	3.00	3.29	6.45	23.82	-.23

TABLE 1 (cont.)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
51. Being able to sleep late for one week, if you were on B shift.	3.54	3.50	11.01	30.08	.01
52. Not having to go to class for one day.	3.25	3.75	11.70	27.56	-.03
53. Being allowed to have a weekend visitor (male or female) stay at the guest house at the usual cost.	3.87	3.05	15.92	27.05	.22
54. Being allowed to have a weekend visitor (male or female) stay at the guest house for free.	5.12	2.92	23.39	31.72	.69
55. Being permitted to skip TI notes for one day.	3.44	3.00	7.83	23.01	-.11
56. Being permitted to skip TI notes for one week.	4.13	3.17	15.23	31.98	.25
57. Having your photograph taken free.	2.67	3.19	6.63	20.66	-.30
58. Getting a 50% discount on laundry service for one week.	4.56	2.62	10.20	20.66	.20
59. Getting free laundry service for 2 weeks.	5.81	2.38	17.86	28.52	.68
60. Getting a 50% discount on haircuts.	3.94	3.14	9.02	22.98	.03
61. Getting a free haircut.	3.99	3.69	10.20	32.17	.08
62. Getting a free dinner at the BX cafeteria.	2.77	3.85	6.78	22.86	-.27

TABLE 1 (cont.)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
63. Receiving an orientation ride in an aircraft at another base.	4.13	3.15	15.80	28.17	.27
64. Getting a free night at the Chevron Club (worth $5 in merchandise).	3.16	3.68	8.13	20.73	-.16
65. Having permission to get a part-time job in town.	3.02	3.07	12.19	25.62	-.07
66. Not having to march back to barracks after chow every day for one week.	4.16	3.30	15.41	30.26	.26
67. Not having to march back to barracks after chow for one day.	3.60	3.14	9.63	25.51	-.02
68. Being put on separate rations for one week so you would not have to eat in the chow hall.	3.92	3.52	16.89	34.58	.26
69. Getting free games (worth $3) at the base bowling alley.	3.73	2.98	6.93	17.36	-.07
70. Getting one free round trip to Champaign.	3.13	3.37	8.13	20.02	-.16

the target courses as were available on the day of administration. All in all, 264 usable questionnaires were obtained from the two target courses, over 90% of the total number of students at that time. In addition, questionnaires were given to 249 students in courses other than target courses. It was felt that these data would be valuable for comparing the students in various courses as well as informative for any larger-scale attempts to use such an incentive motivation system.

The data from these questionnaires were analyzed in several ways. Initially, mean attractiveness of each item was calculated for both the Likert and money scale. This was done separately for various subgroups within the total sample of 513. Next, in order to get an overall picture of the attractiveness of the incentives composite scores for the Likert and money scores were needed. To this end, mean standard scores were computed. This procedure consisted of taking each item's mean attractiveness score and calculating a standard score for it. For example, the 70 mean Likert values for the incentives were examined and the mean and standard deviation for these 70 values were calculated. Each of the 70 values was then transformed into a standard score. Identical computations were repeated for the money scale. Two standard scores for each item resulted from this procedure, one for the Likert scale and one for the money scale. The mean of these two numbers reflects the overall relative attractiveness of an incentive. This measure shall be termed "mean standard attractiveness score."

Table 1 presents the list of incentives showing means and standard deviations of the attractiveness ratings as well as the mean standard attractiveness score for the sample from the two target courses. In general, the two methods of measurement resulted in similar mean attractiveness ratings. For example, the rank order correlation between the two sets of means was .83 for the sample in the target course.

Other breakdowns of the respondents were also made, and means, standard deviations, and mean standard attractiveness scores calculated. These data are presented in the following appendices:

Appendix C Males only in target courses
Appendix D Females only in target courses (Weather only)
Appendix E All other courses outside target courses combined
Appendix F Jet Engine Mechanics
Appendix G Missile Systems Analyst Specialist
Appendix H Aerospace Ground Equipment
Appendix I Missile Mechanics
Appendix J Complete sample combined

While detailed examination of these tables provides much information, several points deserve special attention. For example, the Likert and money scales continue to give comparable attractiveness scores across all courses. For example, items 7, 8, and 25 - all dealing with assignments - are rated in the top three on both scales in every breakdown. Item 43, dealing with mileage restriction is seen as the most

unattractive on both Likert and money scales by every subgroup. In general, the same incentives were viewed as attractive by both male and female airmen. The rank order correlation between these groups on mean standard attractiveness score was .80. However, some exceptions occurred reflecting not surprising sex differences in preferences. Females, for example, were slightly more concerned about personal appearance as evidenced by their prefering a free photograph and being able to wear the uniform of their choice. Males, on the other hand, found free beer, recognition, and lack of restriction more attractive.

There does not appear to be a substantial difference between the attractiveness ratings given by the weather and electrical courses and the ratings made by other courses. For example, the rank order correlation between the target courses and Jet Engine Mechanics is .86 for mean standard attractiveness score. Therefore, the ability to generalize beyond the target courses is enhanced.

4. Selecting Attractive Incentives

With the attractiveness data in hand, the next step was to select those incentives which would be powerful in the incentive motivation program. As was mentioned before, administrative constraints demanded that a manageable number of incentives be actually employed. Furthermore, the inclusion of an incentive with very low attractiveness would be of very limited value in the program. Consequently, decision rules were generated for picking items with high positive attractiveness or high negative attractiveness. After careful inspection of the data from the target courses, it was decided to retain those items which had a mean Likert value of +4 or greater, or -4 or less, or had a mean Money value of +$20.00 or more, or -$20.00 or less. It was planned to ultimately devise a system whereby airmen were able to choose incentives from a "list". For example, an airmen with superior performance could choose to be excused from squadron duty or get a Straggler's Pass. Thus, the mean attractiveness score was not the only criterion for selection. It was felt that even if an incentive was only moderately high in mean attractiveness, but had a great deal of variability, it should be selected. That is, although many students saw it as low in attractiveness, many others saw it as high. Thus, for the latter group it would serve as a powerful incentive. Consequently, a third decision rule was adopted. If an incentive had a mean Likert value greater than +3 or less than -3, and had a standard deviation greater than 3, it was selected.

This procedure resulted in the selection of 50 incentives (Appendix K). However, as on the questionnaire, not all the incentives were unique. For example, item 22 refers to being excused from squadron duty for one day, while item 23 refers to being excused for one week.

5. Exploring the Feasibility of the Resulting Incentives.

Only very superficial attempts had been made at this point to

remove potential incentives on grounds of low feasibility. A few had been removed earlier due to complete lack of feasibility. The next step, then, was to explore carefully the feasibility of the 50 remaining incentives. To accomplish this a series of meetings was arranged with those people who would be directly or indirectly affected by the system. These meetings included the Technical School Commander and his subordinates, the Student Group Commander, the Department heads responsible for the two target courses and their subordinates, several groups of instructors in the target courses, and the supervisory personnel in the squadron which houses airmen in the two courses.

Based on the comments and reactions from these meetings, many of the incentives had to be dropped. This elimination occurred for many different reasons. For example, as we had expected, use of certain incentives could not be approved at Base level, but required ATC approval. Such approval was sought, but in most cases was not forthcoming for various administrative and policy reasons. Other reasons for elimination included lack of needed funds (e.g., 20% discount on transportation to Chicago), difficulty of administration (e.g. separate rations for one month), conflict with Air Force regulations (e.g., three-day pass on Wednesday, Thursday, and Friday), or current practices (e.g., students were already allowed to choose roommates).

6. Selection of Final Incentives

These deletions ultimately resulted in the selection of 14 incentives for final consideration. These are listed below:

a. Being able to ride a bus to school rather than marching.
b. Choice of regions of the United States where base of assignment is located (as available).
c. Special award for outstanding performance sent to new commanding officer.
d. Special award for outstanding performance sent to parents.
e. Having a choice of A or B shift, where possible.
f. Having mandatory remedial study on a Saturday. (negative incentive).
g. Having a mandatory remedial study period for 3 consecutive weekday evenings. (negative incentive).
h. Being excused from squadron details.
i. Getting a three day pass over the weekend.
j. Getting a Walker's pass.
k. Being able to leave class on hour earlier.
l. Not having to go to class for one day.
m. Being able to have a weekend visitor stay at the guest house (i.e., be able to get reservations).
n. Wearing any uniform desired.

At this point, then, incentives had been identified, their importance and feasibility assessed, and a final group of 14 selected. The next step was to actually set up a program whereby these incentives

would be made contingent on behavior.

C. The Experiment

The second phase consisted of taking those incentives identified as both powerful and feasible and making them contingent, in various ways, on performance in the two target courses. In this next section we shall discuss the experimental setting, the dependent measures, the major experimental conditions, and the experimental design.

1. The setting. As mentioned previously, the experiment took place at Chanute Air Force Base in Rantoul, Illinois. Chanute is one of five Air Force technical training centers located in the United States. These five centers graduate approximately 125,000 students per year. The major effort at Chanute, as well as the other technical training centers, consists of resident training, primarily to the apprentice level. The bulk of their students are first-term airmen who have come directly from basic training at Lackland Air Force Base. Chanute offers 170 courses which range in length from two weeks to a year, and graduates approximately 25,000 students per year. Over 6,000 students are in residence at any given time. The instructional side of Chanute's operation is organized into a series of departments. Each of the five departments operates a number of courses. Each of the individual courses has a course supervisor, and one supervisor for each of the sections (blocks) of the course. Under these block supervisors are the actual course instructors. The two courses selected for this research were the Aircraft Electrical Repairman course (3ABR42330) and the Weather Observer course (3ABR25321).

The Aircraft Electrical Repairman (AER) course is a self-paced course utilizing programmed tests and was originally planned to be 16 weeks in length. Since it is a self-paced course, however, the time to complete it is variable. The purpose of the course is to train airmen to perform the duties of the Aircraft Electrical Repairman. These duties include inspection, maintenance and minor repair of electrical systems and components in aircraft and associated equipment.

The course is organized into six parts or blocks. The student takes each block sequentially. At the end of each block a student must take and pass a block exam. This exam is taken when the student has completed all the programmed texts and other materials in that section of the course and feels he is prepared to pass the test. Each block exam consists of a written, multiple-choice test on which the student must get at least a score of 60 to 64 percent (depending on the block) to pass. In some of the blocks a student must also pass a performance test which requires him to actually perform some operation on a piece of equipment. He is scored either satisfactory or unsatisfactory on this performance test by an instructor. Students' who fail to pass any part of the block exam must retake it. After failure of a block exam a student may be required to attend remedial instruction sessions and receive counseling by his technical instructors. Students may be required to attend remedial instruction sessions whenever, in the judgement of his instructor, he needs such instruction. These sessions are

in addition to the students' normal class day. A student's final grade in the course is the numerical average of all his written block examination scores.

The number of students in the AER course at any given time varies from about 200 to 400. The students are all males, and most are between 17 to 20 years old. Most have finished high school, and a small number have had some college. The entrance requirements for the course are relatively low: 40th percentile or better on either the Electrical or Mechanical subscales of the Airman Qualifying Examination (AQE). Thus, the students in the AER course tend to be of lower ability than those in many of the other courses at Chanute, and quite a bit lower in ability than those in the other target course. The Weather Observer (WO) course.

The other course that was selected for study was the Weather Observer course. This course is a lock-step course 16 weeks long. In contrast to the AER course, the lock-step nature of the course with its corresponding stand-up instruction did not allow for variations in the speed of completing the course. There was one exception to this, however. Students who were doing exceptionally well in the course could "fast track" during the last block of the course by taking an accelerated program that was either one or two weeks shorter than the normal four weeks it took to complete the last block. However, due to conditions outside the control of this research, this "fast-track" option was discontinued about two thirds of the way through the experiment.

The purpose of the WO course is to train students in the areas of surface weather observation, plotting weather maps and charts, meterology, and weather equipment operation.

The WO course was organized into four blocks. At the start of the experiment students took the first three blocks concurrently for the first 12 weeks of the course and the last block during the last four weeks. However, about two thirds of the way through the experiment the course design was changed. The new design organized the material into three blocks and called for each block to be taken sequentially. While this change was instituted by Air Training Command and not by the present research effort, its effects on the research program were probably minimal. The material in the course was basically unchanged.

The evaluation system in the WO course was somewhat different from that in the AER course. Students took a series of multiple choice tests throughout each block. The average of these tests, known as "measurements," consistuted the block score, and the average of the block scores constituted the final course grade. Students took 20 measurements during the 16 week course. A student had to pass each measurement. In cases of repeated failures of a given measurement or failure of several different measurements in a short period of time a student could be "washed back," This means that the student had to

repeat the previous two weeks of the course. As with the AER course, a student whose performance was poor could be required to take sessions of remedial instruction and receive counseling.

The number of students in the WO course varied from about 150 to 300. The students were predominantly males, but there were some female (WAF) students in the course. Most of the students were between 17 to 20 years old, almost all had finished high school, and a good proportion had had some college. Since enrollment in the course required a minimum percentile score on the general subtest of the Airman Qualifying Examination (AQE) of the 80th percentile, the students in the WO course tended to be of fairly high ability, and substantially higher than the students in the AER course.

Students in both courses could fail the course, but this was fairly rare. Failing a student for academic reasons usually followed a series of exam failures, wash backs, remedial instruction sessions, and counseling sessions. Students who failed the course were usually transferred to other, generally undesirable courses.

A new class entered each of the two target courses every two weeks. Thus, at any given time students were at all different points in the course. Upon their arrival at the base the students were housed in a temporary "holding" squadron barracks and then assigned to their permanent squadron. Each squadron on the base was composed of students from one or more technical courses, but typically all the students in a given course were in the same squadron. The students in our two target courses were in one squadron, and no other courses were represented in that squadron.

While the technical instructors (non-commissioned officers and a few civilians) were responsible for the technical instruction of the students, a separate group of Military Training Instructors (all NCOs) headed by an officer in the role of Squadron Commander was responsible for the students' military training. The squadron supervisory personnel (Squadron Commander and Military Training Instructors) had responsibility for the students' behavior at all times when the student was not actually in class. They were responsible for such things as discipline, appearance, assigning and supervising work details around the barracks, getting the students where they should be on time, etc.

Students spent 6 hour per day, 5 days a week in class. Chanute operates on a 4 shift per day system. "A Shift" classes go from 6:00 A.M. to noon; "B Shift" from noon to 6:00 P.M.; "C Shift" from 6:00 P.M. to midnight, and "D Shift" from midnight to 6:00 A.M. At the time of this research project the two target courses were operating only on A and B shifts.

Students on A shift would get up at approximately 5:00 A.M., march to breakfast, eat, and march to class by 5:50 A.M. They would attend for six hours, with breaks every hour, and march to lunch. After lunch they were free until early afternoon at which time they were required to

attend "TI Notes." The purpose of this information was to make announcements, assign work details when applicable, etc. They were conducted in the squadron (barracks) area by the Military Training Instructors. Students who did not have work details, medical appointments, drivers training classes, remedial instruction, etc. were then free to do as they wished, including leaving the base. On any given day most of the students did have free time during this period. At approximately 5:00 P.M. students would march to dinner. After dinner they were free to do what they wished.

The barracks area provided a study area, TV room, pool and ping pong tables. Base recreation facilities were also available such as movies, swimming pool, sports equipment, pizza parlor, and the Airman's Club (serving liquor). Students could also leave the base in the evenings. Students were also free to leave the base on weekends except when they were assigned a detail. However, for any given student this was infrequent.

Students on B shift had a similar schedule except the TI Notes were around 9:30 A.M. and they went to class from noon to 6:00 P.M.

2. Dependent measures. The dependent measures for the research program consisted primarily of performance based measures and attitudinal measures. These will be discussed in detail below. In addition, several individual differences measures will be discussed although they were not, strictly speaking dependent measures.

The major source of performance data comes from information contained on a sheet (ATC Form 156) that was kept by the technical instructors for each student. This information included block exam scores, final course grade, length of time to complete the course, course failure where appropriate, remedial instruction, and counseling sessions.

The written exam scores and final course grade were based on the objective tests taken throughout the course. However, some of the items on these tests did change throughout the course of the experiment. Although the fact that items were being changed was known to us, it was impossible to determine, and thus control for changes in the difficulty of the new items. However, the changes in difficulty level were probably random and the number of changed items was very small in comparison to the total number of items that went to make up the final course grade.

Another potential source of bias could have affected the data on course failures, wash backs, remedial instruction, and counseling. All of these decisions on the part of the technical instruction staff were judgement decisions for which there were few hard and fast rules. Thus, for example, instructors could vary in their criteria for remedial

instruction. Furthermore, since turnover in the instructional staff was frequent, instructors at the beginning of the research program may have used different criteria than instructors later in program. However, it is our impression that these differences were small and, in any event, they were undoubtedly random.

The other source of performance data comes from instruments developed especially for this project. It was felt that in addition to actual performance, measures of effort would be valuable sources of additional data. Consequently a measure of effort was devised. Based on interviews with technical instructors and intuitive analysis, a set of items was generated which appeared to tap various aspects of effort in technical training. These items dealt with such things as the level of energy expended by the student, frequency of asking questions in class, level of attention in class, frequency of studying outside class time, how well class time was used, etc. In all, eight items were used, plus one item measuring overall effort. Each item was expressed in a 9-point Likert format. (The complete scale is presented in Appendix L.)

Two forms of the measure were used. One form was for students to make self ratings of effort. This was done at the end of the course. The other form of the measure was designed for technical instructors to rate the effort of students. The instructors were to rate each of their students at the completion of each block of the course. This seemed reasonable since each instructor typically had no more than 20 students in a given class. In addition, the instructor rating form also asked the instructor to indicate how confident he was of his ratings. It was hoped that in those cases where the instructor did not know the student, it would be reflected in his confidence judgement. One point that must be considered is that the instructor did know the actual performance of the students they were rating. It is quite likely that this information had some contaminating effect on their ratings of effort. Likewise, the students knowledge of his own performance could have contaminated his self-ratings of effort.

The second major class of dependent measures dealt with measures of students attitudes. During the last week of the course each student was given a short (half hour) battery of attitude questionnaire. It had been standard practice for some time to give one questionnaire, which was a short student critique of the course (ATC Form 736), at the end of the course. The questionnaires discussed next were merely included when this questionnaire was administered.

The first questionnaire was titled the Student Opinion Questionnaire. It is reproduced in Appendix M. It actually consisted of three separate measures. However, the items for the three measures were mixed throughout the entire questionnaire. The first measure was adapted from an experimental version (Federico, 1970) of the student critique (ATC Form 736) already in use. It included a total of thirty-one 5-point Likert format items dealing with the quality and adequacy of instruction,

individual help, training methods, training literature, visual aids, training equipment, tests, and physical classroom conditions.

The second measure embedded in this questionnaire dealt with overall attitudes toward the Air Force. It consisted of seven items in a 5-point Likert format. The items dealt with such things as the efficiency of the Air Force, the Air Force's concern over the individual, living conditions in the Air Force, the importance of the Air Force's mission, and antimilitary attitudes related to the Vietnam war.

The third measure in the Student Opinion Questionnaire was a measure of social desirability adapted from the Crown-Marlow Social Desirability Scale (Crowne and Marlow, 1967). The original Crowne-Marlow scale consiste of items which are not true of most people, but which are very desirable characteristics. For example, very few people always carefully check their car for safety before a long trip, but doing so would be desirable. Such items were included here to assess the degree of social desirability response set that the students employed in completing the entire battery of questionnaires. Use of such a set would lead students to evaluate the course, the Air Force, etc., in a more favorable way than they actually feel. Ten items in a 5-point Likert format were used, all of which were reworded to fit the technical training situation.

The next questionnaire was entitled the Training Satisfaction Questionnaire, and is reproduced in Appendix N. This questionnaire was designed to measure the job satisfaction the students felt in their position as Air Force trainees. It was adapted from the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, and Logtquist, 1967). The measure contained 22 items in a 5-point Likert format. The items dealt with satisfaction towards such aspects of the technical training task as independence, variety, supervision, security, use or abilities, fairness of Air Force policies,pay, peers, and feeling of accomplishment.

The third questionnaire in the battery was called the Student Attitude Questionnaire (Appendix O). It contained five items in a 9-point Likert format dealing with attitudes toward reinlistment. It included items about volunteering for the Air Force, reenlisting for a second term, and attitudes towards a career in the Air Force.

It was stressed in the directions to all these questionnaires that while the students' names were required, their individual answers would be seen only by the research staff at Purdue University. However, the questionnaires were administered by one of their course instructors.

Two other sets of attitudinal data were collected at other times in the project. One was a type of check on the experimental manipulation and the other dealt with students' and instructors' attitudes towards each of the three experimental incentive conditions. These will be discussed in detail in a later section.

Finally, data were collected on individual differences variables. All students were given a biographical data questionnaire (Background Information, Appendix P) which included items on age, sex, ethnic group, parents income, occupation, and marital status, number of siblings, size and location of home town, etc. In addition, data were available on the four subscales (General, Administrative, Mechanical, and Electrical) of the Airman Qualifying Examination (AQE).

3. Major Experimental Conditions

Three types of incentive systems (experimental treatments) were tested in this program. They were run sequentially over a period of approximately 7 months. Each system had different features, and the nature of the experimental design was such that the effects of the unique aspects of each could be assessed. As a brief overview, the first system gave incentives which could be awarded using only those facilities and resources available at the base itself. These incentives were awarded to the students on the basis of their actual performance in the target courses. The second system utilized the same incentives as the first system, but awarded them differently. A procedure was devised which took into account a student's level of ability and, in essence, gave students handicaps on the basis of ability. In theory, this resulted in awarding incentives on the basis of effort. The third incentive system utilized the handicap system and the incentives used in the first two systems, but added additional incentives in the form of financially based incentives.

a. Incentive system #1. The first incentive system was a "classical" system in that valued rewards were made contingent on performance; and the higher the performance, the more the rewards. Two other "classical" systems were considered, but rejected. First, a system whereby a person gets some reward if his performance surpasses some cutoff point (bonus system). This has the disadvantage that there is no incentive for performance beyond the cutoff point. A second type of system is one where the top performing group (e.g., top 10%) gets rewards. Such a system could discourage students from helping each other since if a student helps someone, it hurts his own changes to be in the top group.

In contrast to these two approaches, the first incentive was designed so that students received points for their tech school performance. The higher the performance the greater the number of points they would earn. After earning points students could then select the incentive they wished to have by "buying" it with their points. The incentives varied in cost as a function of their value to the students and their feasibility of administration.

The details of this first incentive system can best be presented by a series of issues that had to be considered in designing the system. The issues are: What incentives should be used? How much should they cost? What behaviors should be rewarded and how much reward should be given? How should the mechanics be handled?

The first issue - the incentives to be used - was based on the first phase of the research. After the process of identifying valuable and feasible incentives, a list of 14 incentives remained. However, when it came time to make arrangements for actually using the incentives, two of them had to be dropped for feasibility reasons which had not been anticipated previously. We were thus left with 12 incentives. These are listed and described below.

1. Bus rides to or from school. The original plan was to have the students be able to ride the bus to and from class rather than march. Because of the limitation at the base it was only possible to arrange transportation from school for A shift students and to school for B shift students. This incentive was later discontinued due to its infrequent purchase.

2. Commendation certificates sent to Commanding Officer at new base of assignment. Since the new base of assignment for each student was known before the student finished his residence training, it was possible to send some sort of certificate to his new base before the student actually arrived. The certificate was individually typed and hand signed by the Department Head (a full colonel).

3. Commendation certificate sent to parents. This certificate was similar to the one sent to the new Commanding Officer. Both of these certificates were sent only if the student indicated that he wished them sent.

4. Walker's Pass for one week. Under normal circumstances students in A shift assembled in formation, marched to breakfast, ate, marched to school, marched back from school to lunch, and marched back to the barracks area. This incentive enabled the student to walk to these locations without any special formation.

After this incentive had been purchased a few times, the base personnel expressed concern over students walking who were not actually eligible. A system was thus developed whereby a student who "bought" a Walker's Pass would receive a small, brightly colored metal pin to wear on his uniform to indicate that he was eligible to walk. These pins were returned at the end of the walking period.

5. Being able to leave class one hour earlier. This incentive could be purchased in blocks of 1, 2, 3, 4, etc. hours. This incentive, as well as the other incentives involving time off from class presented no problem whatsoever to the Electrical course since it was self-paced. However, the Weather course had some problems due to the lock-step nature of the course. They felt that certain parts of the course could not be missed. Rules were set up so that students could not get time off when an exam was scheduled, nor when students taking time off resulted in not having enough students to clean up the area at the end of class. (To our knowledge this latter contingency never arose.) In

addition, students in Weather could not take time off during a week containing a holiday since all five days of material had to be condensed into four days for those weeks. Finally, the Course Supervisor had to approve any time off from the course. If a student requested time off during a part of the course he considered critical, he could require the student to choose another time to take off.

6. Getting a day off during the week. This incentive allowed the student to get out of class on a Tuesday, Wednesday, or Thursday. A student could not take a Monday or Friday off with this incentive since that would constitute a 3-day pass, a more expensive incentive. Also, he could not combine a day off with a 3-day pass and get; e.g., Thursday through Sunday off. This would be against Air Force regulations since it would result in more than 72 consecutive hours off.

7. Getting a 3-day pass. This incentive was essentially getting a Monday or Friday off with no responsibilities over the weekend. Thus, a student could be off the base for 72 hours.

8. Wearing any uniform to class for one week. Under normal circumstances, trainees, including the WAF, wore fatigues to class. These are rather warm, loose fitting uniforms. Several other uniforms were available, all of which were generally considered more attractive than the fatigues. Thus, this incentive allowed students to wear any Air Force approved uniform to class they wished. The only exception to this was when the weather was very cold in which case the heavier fatigue jackets had to be worn.

9. Being excused from squadron detail for one week. This incentive enabled the student to be excused from such details as cutting grass, shoveling snow, picking up debris, etc. Unfortunately, all squadron details could not be included because the squadron supervisory personnel felt there would not be enough students to do certain details if they had been included. These details included parades, weekend barracks guard, and preparation for major inspections. However, these details were infrequent for any individual airmen.

10. Choice of A or B shift. This incentive enabled a student to transfer from A shift (class for 6:00 AM to noon) to B shift (class from noon to 6:00 PM) or vice versa. It was available to students in the Electrical course, but not to students in the Weather course due to the structure of the two courses. Specifically, in the Weather courses the two shifts were not covering the same material at the same time. Since the Electrical course was self-paced, this presented no problem for them. However, shortly after the system was in operation, the Electrical course went to an A shift only operation. Thus, this incentive was essentially dropped.

Two other incentives of a negative nature were originally proposed for the first incentive system. These were: a) mandatory study periods on Monday, Tuesday, and Wednesday evenings, and b) mandatory study periods on Saturday. Although the students were informed of these, it became

quickly apparent that neither the squadron nor the technical school had sufficient personnel to man these sessions, so they had to be discontinued. It is felt that this was very unfortunate for the program.

Many of the instructors, both military and technical, felt that the incentive system as it was originally proposed to them took away much of their power to retain discipline, discourage poor performance, etc. A frequently cited example was the student who was doing well on his tests but was disrupting class, was a discipline problem in the squadron area, etc. The base personnel felt that this type of person should not receive special privileges.

To satisfy their concern an element was built into the incentive system that allowed an instructor, in conjunction with the course Supervisor or Squadron Commander to disallow a student from taking any privileges for a specified period of time, usually one week. The student would not lose points he had earned previously and could earn more points during this "time-out" period, but he could not use any of the actual incentives.

The second major issue in the design of this first incentive system was how much each incentive should cost. Recall that it was decided to use a menu system whereby the students could choose their own incentives. This technique has the advantage of maximizing the value of high performance for each student since the incentives he earns are, to a certain extent, of his own choosing rather than imposed by the system. Another advantage is that is such a system, there is considerable variability in the cost of each incentive. The student then has the option of immediately purchasing an inexpensive incentive or saving his points for one more expensive.

The actual setting of the cost of each incentive was based on two criteria: rated attractiveness by the students and feasibility of administration. The first consideration was rated attractiveness, but for those incentives which were very difficult administratively (i.e., time off) the price was raised somewhat, and for those incentives which were very easy administratively (i.e., Walker's Pass and choice of uniform) the price was lowered. These considerations led to assignment of the following costs to each incentive:

	The Incentive	Cost
1.	Bus ride for one day	1 point
2.	Walker's Pass for one week	4 points
3.	Choice of uniform for one week	2 points
4.	Get out of details for one week	3 points
5.	One hour off class	7 points
6.	Day off class	25 points
7.	3-day pass	30 points
8.	Choice of A or B shift	20 points

The other incentives, certificates sent to new Commanding Officer and to parents were handled differently. It was felt that it would not be appropriate for the students to buy these incentives since the obtaining of such a certificate would then be at least partially a function of wheter a person chose to purchase it rather than strict merit. Consequently, it was decided to award these certificates if a student's performance was at or above the 90th percentile based on norms made up from the performance data for the past year.

The third major issue in designing the first incentive system was what behaviors to reward and how much reward to give. It was obvious that the major type of behavior to be considered by the system was technical school class performance. In the Weather course this was fairly straightforward since the major performance variable consisted of scores on the measurements. Other performance measures such as probations, remedial instruction time were also available, but since these were all indicants of poor performance, they were not an appropriate basis for giving positive incentives. Exceptional students could accelerate during the last section of the course, and while incentives could have been made contingent of this behavior, the course supervisory personnel felt that this was unnecessary and undesirable. Thus, for the Weather course, positive incentives were made contingent on scores the students received on the measurements they took throughout the course.

The situation for the Electrical course was a bit more involved since both score on exams and speed of finishing this self-paced course were relevant variables for positive incentives. In discussions with the course supervisory personnel, it became clear that, while both were important, they felt that the speed of completion criterion was more important than the score on exams criterion. Consequently, both were used in the system, with emphasis on the speed of completion criterion.

An important decision in the design of the system was how much reward should be given for a specified level of performance. This is a critical issue since giving too much reward (too many incentives) for a given level of performance would not encourage higner performance; and giving too few rewards would not make them worth working for. To arrive at the actual performance-reward contingencies, the following decision rules were used.

1. It should be possible for a large proportion of the students to get at least some incentives.
2. The higher the performance, the higher should be the level of rewards.
3. Maximum possible performance should be rewarded with all the incentives in the system.

With these decision rules in mind, it was decided that students should start earning points (to be used to buy incentives) if their performance was at the mean of students' performance throughout the previous year. Thus, if students in the experimental system failed to

increase performance over the level of the past year, 50% of the students would still receive at least some points. However, performance at this 50th percentile level would result in very few points. Furthermore, students whose performance was near the maximum possible (e.g., 99th percentile) should earn enough points to be able to purchase all the available incentives on a regular basis.

These decision rules, and an examination of the performance data in the two courses over the previous 12 months resulted in the following performance-reward relationships.

Weather:

Measurement Scores	Number of Performance Credit Points
86 or less	0
87	1
88	2
89	3
90	5
91	7
92	8
93	9
94	10
95	11
96	12
97	13
98	14
99	15
100	16

Electrical:

Written exam score	Number of Performance Credit Points
77 or less	0
78	2
79	4
80	6
81	8
82	10
83	12
84	14
85	16
86	17
87	18
88	18
89	19
90	19
91	20
92	20

93	21
94	21
95	22
96	22
97	23
98	23
99	24
100	25

Points for speed of completion were arranged so that the student received 2 points for every hour he finished a block under the target (mean) time.

Note that while the number of points for the two courses seem quite different they were, in fact, designed to be equitable. They were set so that a student who was performing at; e.g., the 75th percentile in Weather would receive the same number of points as a student performing at the 75th percentile of the Electrical course. The apparent discrepancy is due to the fact that the Weather students took more exams in the same time period than did the Electrical students and the points were adjusted accordingly. This percentile technique also resulted in a non-linear relationship between written exam scores and number of points in the two courses. For example, an exam score of 80 in Electrical earned 6 points, but 81 earned 8 points (an increase of 2 points); while 86 earned 17 points and 87 earned 18 points (an increase of 1 point).

While every attempt was made to make the incentive system equitable for the two courses, it became apparent after a few weeks of this first condition that the Electrical students were earning many more points than the Weather students. Upon exploration of the system it was discovered that we had used inaccurate information on the average time to complete the various sections of the Electrical course. The more accurate data indicated that average times were much shorter and this discrepancy explained why the Electrical students were earning such large numbers of points. A revision was made in the system to account for the more accurate information. This was communicated to the students, and they seemed to accept this change without complaint.

Another aspect of course performance behavior that was considered for both courses involved poor performance such as wash backs, exam failures, and taking an excessively long time to complete a section of the course. It was felt that some sort of negative incentive should be made contingent on such poor performance and, in fact, the original version of the first system made the negative incentives of mandatory study periods on weekdays evenings and weekends contingent on certain types of poor performance (e.g., failing a measurement in the Weather course). However, as explained previously, it became necessary to abandon this incentive.

In addition to these measurable aspects of good and poor performance the course instructors and supervisory personnel were concerned about such non-measurable aspects of course performance such as disrupting the class, gross lack of effort, etc. They felt that it would be undesirable for the incentive system and the operation of the course if students who engaged in such behaviors received valuable incentives due solely to their performance on exams. Consequently, a feature was added to the system whereby an instructor, in conjunction with the Course Supervisor, could make an individual student ineligible to purchase any incentives for a period of time, usually one week. A student would not lose any points for this suspension and could accumulate more points during the suspension, but he could not actually enjoy any incentives for that period. Obviously, if the student continued his undesirable behavior, the suspension could be continued indefinitely. This suspension was used very rarely.

It became apparent as we were designing the first incentive system that yet another class of behaviors should be considered by the system; i.e., military behaviors. From the point of view of the Air Force, an airman's performance involved both tech school behavior and military behavior. An airman who did well in tech school but was otherwise a discipline problem, did not maintain his personal appearance, assaulted other students, etc. was not actually a "high performer", and should not be given valued positive incentives.

To deal with this issue we requested the squadron supervisory personnel (who were primarily responsible for military behavior and who brought this issue to our attention) to supply us with critical incidents of poor military performance. The original idea was to somehow list the poor behaviors and penalize those students who engaged in them. However, this was not successful since very few actual incidents were of a specific enough nature to be useful. Consequently, the suspension of buying incentives approach described above for non-measurable course performance was employed for military behaviors. Thus, a military training instructor, in conjunction with the Squadron Commander, had the authority to suspend buying privileges. This type of suspension was also very rarely applied.

The final set of issues in designing the first incentive system dealt with how the mechanics of the system would be handled. Basically, the system required that performance be translated into incentives. To do this, it was necessary that information on performance be obtained, this information be translated into the number of points earned, these points be given to the students, the students select the incentives they desired from the list available, and that the students actually "consume" the incentives.

Collecting performance information was no real problem, it merely required that instructors report the scores of their students when they took an examination (as well as the time to complete that section of the course in Electrical). The staff at the Training Research Applications

Branch (TRAB) who served as our Air Force liaison at the base then calculated the number of points each student had earned. At the beginning of the first system, students were given actual printed tokens for their points, but, due to the possibility of a "black market" developing, this was later changed to a system whereby each student had a sort of checking account, and after each exam or purchase of an incentive he was given a form indicating his balance (number of points). Once the student had accumulated points he could purchase incentives. He did this by submitting a Privilege Buying Form (see Appendix Q). Upon receipt of the Privilege Buying Form he was issued an authorization slip for the incentive he had purchased. This was a printed form which described the incentive and was filled out with his name and the date or dates when the incentive was to be used. In addition, on some of the authorization slips the student had to obtain the signature of his instructor and/or squadron commander. This was necessary so that the relevant people would know he was taking the incentive. For example, the student's squadron commander and instructor had to know when the student was taking a day off. Some of the authorization slips (e.g., Walker's Pass, choice of uniform) needed no signatures, but had to be produced by the student in the event he was challenged while using the incentive. The instructors, both course and military, were instructed to always sign an authorization slip when it was presented. If they felt a student did not deserve the incentive due to; e.g., poor military performance, they could put him on the suspension of buying privileges, but they were not to refuse to sign individual authorization slips withoug employing the one week suspension.

These mecnanices of the system may seem quite complex, but in fact, once understood they functioned quite smoothly and rapidly. For example, a student could typically be using an incentive from 48 to 60 hours after he took an exam.

A final issue on the mechanics of the system deals with eligibility. The training system was set up in such a way that a new group of students started in each course every two weeks. Thus, any given time there are brand new students and students about to graduate in the course at the same time. When the first incentive system was started, all students who were in the course at the time were made eligible to participate in the system. The only exception to this was that points would not be given for exams taken during the last week of class. It was felt that it would be impossible for students to get and spend points for exams taken the last few days of class since they typically left the base within 48 hours of graduation.

All of this information about the mechanics of the system: incentives, cost, performance-point contingencies, suspension of privileges, and logistics of getting incentives was explained to the students and instructors in a series of briefings. In addition, all relevant personnel were supplied with a manual describing the system in detail. Copies of the two manuals for this first incentive system (one for Weather, one for Electrical) are presented in Appendix R.

b. Incentive system #2

The second of the three incentive systems was system was similar to the first in that the same incentives were used, and the same mechanics employed. The difference was the manner in which incentives were given. In the first system incentives (actually points) were given on the basis of raw, observable performance. In the second system a type of handicap system was used which considered the ability of the student. Theoretically, this system gave rewards on the basis of effort.

Such a system is desirable on both theoretical and practical grounds. On the theoretical side, one could argue that task performance is primarily a function of two classes of variables, ability variables and motivational variables. Furthermore, in a setting such as Air Force technical training (as well as many others) it is impractical to consider raising levels of such abilities as intelligence, numerical ability, clerical ability, etc. Thus, to increase performance, one must increase motivation. In fact, this was exactly the purpose of this whole experimental incentive program.

Theoretical models which deal with task motivations such as those presented by Vroom (1964), Porter and Lawler (1968), Campbell, Dunnette, Lawler and Weick (1970), Lawler (1971) imply that to increase motivation (that is, increase effort) one must: a) make valued rewards contingent on high performance, and b) make high performance contingent on high effort. A classical incentive system such as that employed in our first incentive system satisfies the first condition: high rewards for high performance. However, individuals in such a classical system may not perceive that their level of effort is related to their level of performance.

This could occur in several ways. Individuals may not receive clear enough feedback about their level of performance, or there may be situational constraints which limit the relationship between effort and performance (e.g., and assembly line), or effort may be expended on tasks that the organization does not consider important, or some individuals of lower ability may feel that even their hardest effort will not result in high performance. It is this last situation which is probably most relevant to Air Force technical training. Specifically, low ability students may see it as difficult if not impossible to be a high performer, and thus get the rewards of the system. Thus, the low ability student would not be influenced by a classical incentive system.

The implication of this line of reasoning is that incentives should be given on the basis of effort rather than on the basic of performance. Such a system would maximize the relationship between effort and rewards and, presumably, maximize effort.

To accomplish this, however, it is necessary to have some measure of effort. This is indeed a difficult criterion. However, a technique

was devised for this project which attempted to do this. It started with the assumption that performance is largely a function of ability and motivation. With this assumption, if one has measures of both ability and performance, one can derive a measure of motivation (i.e., effort). Specifically, if one collects a sample of course performance data from students who have completed the course as well as the ability test data available for these students, one can generate equations through multiple regression to predict course performance from knowledge of ability data. Such equations essentially provide the mean performance for the students with that "pattern" of ability. With such an equation it is possible (assuming performance is a function and motivation) to make statements about motivation. If one merely subtracts predicted performance from actual performance one has a measure which should be related to effort. For example, if two individuals have the same level of ability but one out performs the other, it is safe to conclude that the higher performer exerted more effort. With our system, both would receive the same predicted performance score since the prediction is based solely on ability, but since actual performance is different, subtracting this identical value from the actual performance of each would result in the higher performer getting the higher score.

Thus, if one were to predict for each student his level of expected performance from the ability-based regression equation and give incentives as his performance went above this predicted level one would be giving incentives on the basis of effort. The high ability student would have a high "target score" and the low ability student would have a low "target score" but it would be equally difficult for both to attain or surpass their respective target scores.

Utilizing this theoretical line of reasoning admittedly rested on several assumptions. For example, it is a certainty that partialling out ability from performance includes error variance over and above motivation. At the very least, however, such a technique could provide for equating people on the basis of ability by simply giving incentives on the basis of increases in performance over the level of performance predicted solely on the basis of ability. The major advantage, of course, of such a system is that it enables the lower ability student to have an equal chance of earning incentives since he can earn incentives by high effort, even though he may not be a high performer.

Such a system was the basis for the second incentive system. Ability and performance data were collected for students who had completed the courses during the one year period preceeding the start of the incentive program. Ability data consisted of the Armed Forces Qualifying Test (AFQT), a general aptitude test; and the Airman Qualifying Examination (AQE) made up of four scales: general aptitude, administrative aptutude, mechanical aptitude, and electrical aptitude.

These ability data were used as predictors in a step-wise multiple regression to predict final course grade in the Weather course and final

course grade and total time in course for the electrical course. The development and cross-validated multiple Rs are listed in Table 2.

The idea behind the equations so generated was that we could take any current or entering student and by utilizing his AQE data predict his final course grade and, for Electrical, the time it would take to complete the course. This predicted value would then serve as his target score. That is, it would be the 50th percentile of performance for students with his "pattern" of abilities. He would earn points for buying incentives if he surpassed that target score; and the greater his performance over the target score, the more points he would earn.

However, the equations predicted final course grade, and it was felt that the system should be refined to predict smaller units of performance: That is, measurement scores for Weather and block exam scores and time to complete each block in Electrical. In other words, to utilize the same frequency of reward as in the first incentive system. To do this it was necessary to generate predicted scores or target scores for each block in Electrical and for each measurement in Weather. One way to do this would be to generate separate prediction equations for each block or measurement. This was felt to be impractical, so a type of averaging technique was used. Since the final course grade in Electrical was the average of each block exam score, it was possible to assign the predicted final course grade as the target score for each block. However, since the blocks varied in difficulty, this procedure would have resulted in some blocks being easy to get points in while others were more difficult. To equalize the ease of getting points in each block we examined the block performance data for the 12 months before the program started and calculated the difference between each mean block score and the mean final course grade. Means for easy blocks were, of course, higher than the mean final course grade, while means for difficult blocks were lower. These mean differences (based on samples of near 1000 for each course) were then used as correction factors for establishing target scores for each person on each block. For example, if a given individual had a predicted final course grade in Electrical of 78, he might get block target scores of Block 1=78, Block 2=80, Block 3=79, Block 4=75, and Block 5=78, reflecting the fact that students in the past scored on the average 2 points higher than their final course grade in Block 2, 3 points lower in Block 4, etc. Target scores for time in each block in Electrical and measurement scores in Weather were developed in an analogous fashion.

The number of points the students earned for surpassing their own target scores was analogous to the method of the first system. That is, Electrical received two points for every exam score point above their target score and two points for every hour they finished a block under their block target time. Weather students received one point for every percentage point they were above on their target score.

The transition from the first to the second incentive system was handled by giving the students new manuals (see appendix S) and by

Table 2 Multiple Regression Coefficient For Predicting Performance From Ability Data

Criterion	Predictors	Development R	Cross-Valided R
Final Course Grade (Weather)	AQE Administrative AQE General, AQE Electrical	.53 (N=623)	.52 (N=422)
Final Course Grade (Electrical)	AQE Mechanical, AQE Administrative, AQE General	.39 (N=560)	.38 (N=307)
Time in course (Electrical)	AQE Administrative AQE Mechanical, AQE Electrical	.32 (N=558)	(Insufficient Data for Cross Validation)

briefings. Also, each student received his own personnel target score. They were told that the new system would go into effect three days after the briefings and that points they had already accumulated were not taken away, they could spend them as before. The actual incentives were unchanged as were the "prices." The logistics of the system were also the same except that the calculation of points earned was based on each individuals target score.

c. Incentive system #3

The third and final experimental incentive system was similar to the second in that the same basic set of incentives was again offered, and points were given on the basis of the individual target score method, but it differed in that additional incentives were offered over and above those available in the first two systems. These incentives were financial in nature. That is, they had to be purchased by the research staff rather than supplied by current base resources.

From a practical point of view, the purpose of this incentive system was to determine whether it was cost effective to employ these low feasibility incentives in Air Force technical training. From a theoretical point of view the purpose of this system was to determine whether increases in effort or performance would follow if the valence of the outcomes following high effort was increased.

In order to select these financially based incentives, the data on incentives and incentive preferences collected in the first phase of the research were again examined. In addition, groups of students at the base were interviewed and given questionnaires about financially based incentives that would be attractive to them. After these data had been examined and the feasibility of the incentives explored a list of six incentives resulted. These will be discussed below.

Since the purpose of this third incentive system was to increase the total amount of incentives, these financially based incentives had to be given in addition to those available in the second system. This was accomplished by awarding the student two sets of points for his performance in tech school. One set, called Base Privilege Points, was identical to those awarded in the previous system. That is, they were calculated in the normal way and could be used to purchase 3-day passes, choice of uniform, etc. The other set of points, called Financial Privilege Points, was calculated in the same fashion as the Base Privilege Points, but could only be used for the financially based incentives. So, if a student earned 25 base Privilege Points on a given exam, he would also earn 25 Financial Privilege Points. The two types of points were not interchangeable. That is, Base Privilege Points could not be used for financial incentives, and vice versa. This was done so that there would not be a "run" on one type of incentive, especially the financial incentives.

The procedure for setting the "worth" of each Financial Privilege

Point was to estimate maximum expected performance for a period of six weeks (the minimum amount of time it was felt it would take to assess the effectiveness of the third system) and divide that by the amount of funds available. This resulted in each Financial Privilege Point being worth 75 cents. At this level it was quite possible for students to earn an extra $25 worth of incentives each week, which many students in fact did.

The actual financial incentives and their cost are presented below.

1. Chits for BX facilities. These facilities included merchandise and services such as clothes, uniforms, personal hygiene items, cameras, sports equipment, beer, haircuts, beauty parlor, gasoline, oil, minor auto repairs, pizza, etc. Students were issued printed certificates redeemable for any of these items. Each certificate was worth $1.00 and they had to be "purchased" in units of $3.00. Thus, $3.00 worth of certificates "cost" the student 4 Financial Privilege Points.

2. United States Savings Bonds. A $25.00 savings bond could be purchased for 25 points. It could be redeemed for cash ($18.75) after 60 days or could be held to let the interest accumulate.

3. Gift Certificates for Sears. Gift certificates for Sears were issued in multiples of $6.00 (8 points each). A Sears catalogue store was located approximately 1/2 mile from the base, and a regular store was available in Champaign, about 12 miles from the base.

4. Chits at the Airmen's Club. These were purchased in multiples of $3.00 (4 points each) and could be used for beer, mixed drinks, etc. at the Airmen's Club located on the base.

5. Round trip bus transportation. Students could purchase round trip bus tickets to anywhere they wished. The cost in points was determined by the cost of the ticket (1 point = 75¢).

As with the other incentives, each of these could be purchased as many times as the student wished.

The transition from the second incentive system to the third system was handled in a similar fashion to the previous transition. Students were informed of the new system and given new manuals (see Appendix T). Points earned during system two were still negotiable for base privileges in system three.

At the end of the third incentive system the students were informed that the entire incentive system was about to end (in three days) and that they must spend all their accumulated points within two weeks of that time.

4. Experimental Design

Thus far we have discussed the methods and results of our efforts

to identify incentives, the dependent variables used in the project, and the nature of the three incentive systems. We shall now discuss the experimental design; that is, the manner in which the experimental conditions were arranged so as to be able to evaluate the effectiveness of the various incentive systems.

In order to assess the effectiveness of the incentive systems it was necessary to establish a baseline, or control group, which was not exposed to the incentive system byt which was relevant for comparison. Actually, data were collected for several types of control groups. The first type of control data consisted of measures of course performance in the two target courses for the year immediately preceeding the start of the program. These data were to be examined to assess any consistent trends over time. Specifically, it was felt possible that performance in the courses could be higher or lower at certain times of the year. It was possible, for example that performance in the summertime would be lower since students might study less when it was hot. Another possibility was that classes starting in the late summer might contain a greater proportion of high school graduates than typical classes due to the timing of high school graduation. (Late summer classes could contain these high school graduates, following enlistment in June they would go to basic training for the first part of the summer before attending technical school.)

By examining course performance over time such trends could be detected. If for example, performance dropped in the early summer, rose in late summer, and dropped down again by Fall, such trends would tend to mask the effects of the actual incentive program. If such trends were to be found in the year preceeding the program these effects would aid in interpreting the data collected during the experimental program.

In the event that cyclical trends were not present in these data, they could be used as a standard control group representing typical performance in the two target courses. Such a control group would be one point of comparison with the various incentive conditions.

However, the data available on this group of students consisted only of performance data. Most of the attitudinal data were derived from questionnaires designed specifically for this project. Thus, a baseline for the attitudinal data was also necessary. To generate such a baseline, the attitude questionnaires were developed early in the project and were administered to the students in the target course throughout the period when the information on potential incentives was being collected. (The information on potential incentives was being collected at this time from students in courses <u>other than</u> the two target courses.) It should be noted that these attitude questionnaires were administered when the student graduated along with questionnaires that were normally given at that time by base personnel. As such, they constituted no real change in procedure for the students.

Thus, both performance and attitudinal data were collected, forming

a standard control group where no intervention by the research staff occured.

In addition to this standard control group it was necessary to obtain data on a possible Hawthorne effect. The "Hawthorne effect" is the tendency for performance and attitudes to increase when a group of people in an organization is given special treatment or attention. Such a Hawthorne effect could occur in this study since the incentive system definitely constituted special treatment. If such an effect were to occur when the incentive conditions were started, it would artificially inflate any positive effects on performance and attitudes due to the incentive system itself.

To assess the presence of such a Hawthorne effect, another control condition was generated. Since the basis of the Hawthorne effect is special treatment and attention, giving the students special treatment and attention in the absence of any incentive system should produce any Hawthorne effect that was going to materialize. Furthermore, any changes in performance and attitudes due to the special treatment could be detected and thus partialled out of the incentive effects.

To accomplish this, several types of special attention were generated. First, the students in the two courses were moved together into the same squadron and barracks complex. They had been together at one time, but were separated for administrative reasons. At the start of this Hawthorne condition they were moved back together. Second, they were told that they were to participate in a special research project being conducted by the Air Force and Purdue University. Finally, they were given many questionnaires, participated in group interviews, and were generally led to believe that they were involved in a special project.

Previous to the start of this Hawthorne condition they had had no real contact with the research team or research effort. As stated before, they were given our special questionnaires as they graduated from the course, but they had no reason to think that these questionnaires were any different from the standard Air Training Command questionnaires that had been routinely administered to other graduates long before they themselves ever arrived at the base. There had been extensive interviewing and questionnaire administration by the research staff previous to this Hawthorne condition, but all of it had intentionally been done with students in other courses whose place of instruction and location of barracks was physically distant from the students in the target courses.

After a sufficient body of data had been collected for the Hawthorne control condition, a period of close to five months elasped while the mechanics of the first incentive system were being worked out. It was not feasible to continue the Hawthorne condition during this time due to the manpower required to give the special attention.

At the end of March, 1972, the first incentive system was started. As described previously, the three incentive systems were run consecutively.

A body of performance data was also collected after the last incentive system to assess the after-effects of the incentive program.

Finally, a set of performance data was collected from a sample of courses not in the program. These data were collected during the time periods of the various experimental conditions to detect any base-wide changes in performance.

The various aspects of the experimental design are presented schematically, along with their scheduling in Figure 1.

In addition to the procedures discussed already, several other measures were used at various points in the program such as checks on the mainipulations, student and instructor evaluations of each incentive system, etc. These will be discussed in the Results section, were pertinent.

III RESULTS

A. Overview

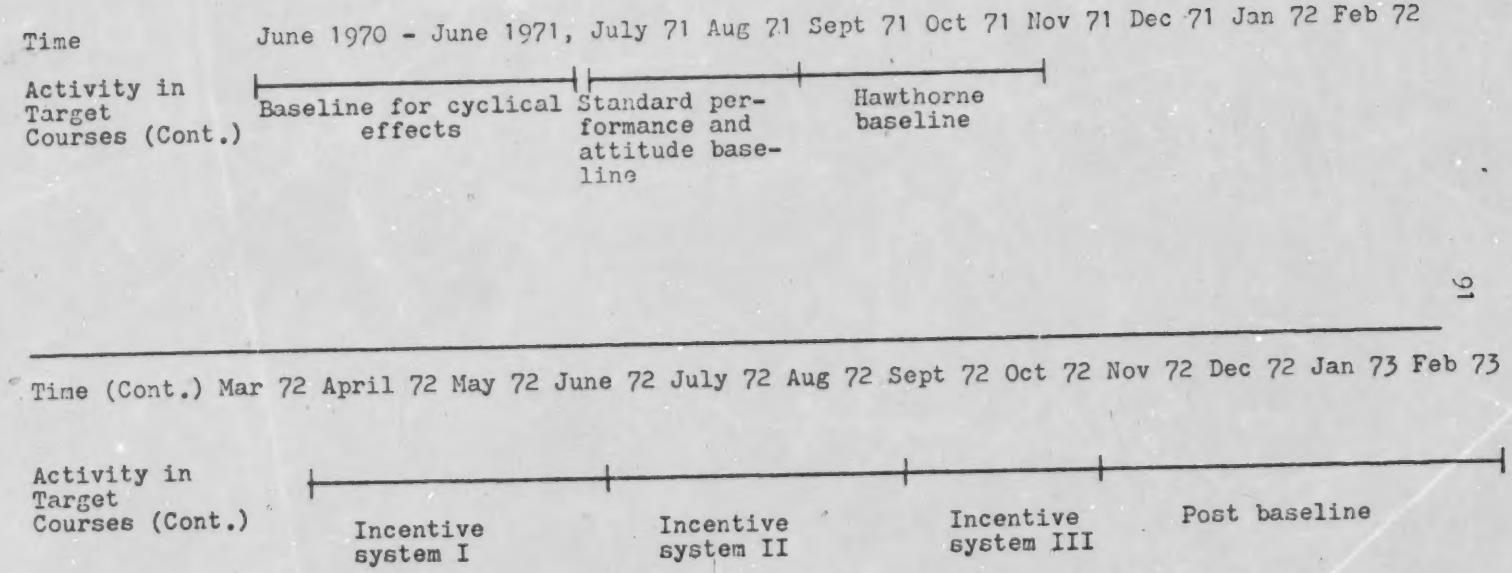
We now turn to the analysis of the data collected in the program. Since a great deal of data will be presented, an overview of the organization of this section is appropriate. We shall first consider some miscellaneous points which will aid in the interpretation of the results. We shall then go into the effects of the program on performance, discussing the selection of appropriate baselines, checks on the manipulations, and finally the actual performance data. The next section deals with effects of the program on attitudes. The following section will deal with student and instructor evaluations of the incentive program. Results of analyses dealing with individual differences comprise the next section. Lastly, data on the frequency or purchasing various incentives will be presented.

The first point to consider in the interpretation of the data is the issue of statistical significance. Due to the large sample sizes, very small absolute differences attain statistical significance. For example, a difference of 2 percentage points on exam scores is generally statistically significant. However, from a practical point of view, this difference is not really meaningful. Therefore, to avoid problems in interpretation, levels of significance will not generally be reported. Only in those analyses, where the sample sizes are small enough to be meaningful, will significance levels be reported.

A second issue deals with interpreting sample sizes. Since each student was in the course during at least two experimental conditions, some of a person's data are analyzed as part of one condition and some of his data are part of another. This situation makes the sample sizes in the analyses sometimes seem inconsistent. For example, one might expect that the sample size for an analysis of final course grade to be equal to the sample size for mean block performance. In fact, both

Figure 1

Schematic Representation of Experimental Design


Time
June 1970 - June 1971, July 71 Aug 71 Sept 71 Oct 71 Nov 71 Dec 71 Jan 72 Feb 72
Activity in Target Courses (Cont.)
Baseline for cyclical effects
Standard performance and attitude baseline
Hawthorne baseline
Time (Cont.) Mar 72 April 72 May 72 June 72 July 72 Aug 72 Sept 72 Oct 72 Nov 72 Dec 72 Jan 73 Feb 73
Activity in Target Courses (Cont.)
Incentive system I
Incentive system II
Incentive system III
Post baseline

the sample sizes and means will typically be different for the two analyses. Specifically, a student's final course grade goes only into the data for the condition in which he graduated from the course. Mean block performance is the mean of those blocks which were passed under the given condition. Since final course grade is thus contaminated for those subjects who passed blocks in two or more treatments, the majority of the analyses stress mean block performance under the treatment in question.

B. Determination of Appropriate Performance Baselines

It is extremely important in a field experiment such as this to select an appropriate baseline with which to compare the effects of the experimental program. To do this, several sets of performance data were collected. The primary performance baseline consisted of course performance data for students taking the two courses from January, 1970, to the beginning of the incentive program (September 1971). However, before the data for these 20 months could be used, it was felt necessary to examine these data for cyclical effects. It was quite possible that students entering the course at different times of the year would display consistent variations in either ability or performance. To assess this possibility the data were broken down by month of graduation. These data for final course grade for the two courses are presented in Figure 2. The figure indicates that performance was basically constant for the WX course. This finding is further supported by the data in Figure 3 which shows the month by month mean AQE General scores for the two courses. Here, ability in the WX course was relatively constant. Thus, for the WX course, no cyclical trends were in evidence.

However, the picture is quite different for the AER course. Figure 2 shows that final course grade was generally decreasing over time, but, grades increased somewhat in August-October of 1970. The ability data do not show as much of a gradual decrease until towards the end of the baseline period, but an increase in ability in August-October is indicated. This pattern is confirmed by Figure 4 which gives month by month data on time to complete the course. Time to complete increased toward the end of the baseline, but students showed a major increase in speed in August-October.

The decrease in ability and performance toward the end of the baseline supports the information we had been given by the AER supervisory personnel. They had told us that the quality of the students they were getting had decreased since the beginning of 1971. The increase in performance (speed and exam scores) around August to October is also explainable. The students who graduated from the course in late September and October (given the amount of time they took to complete the course) entered basic training in the beginning of the summer. Thus, these students most likely had finished a full year of school when they enlisted. Students who entered during the school year are much more likely to be school dropouts or enlistees who left school to enter the Air Force. Thus, even though differences in ability or actual years of education may not differ for the enlistees who enter in early summer,

Figure 2 . Final Course Grade Over Time, by Course

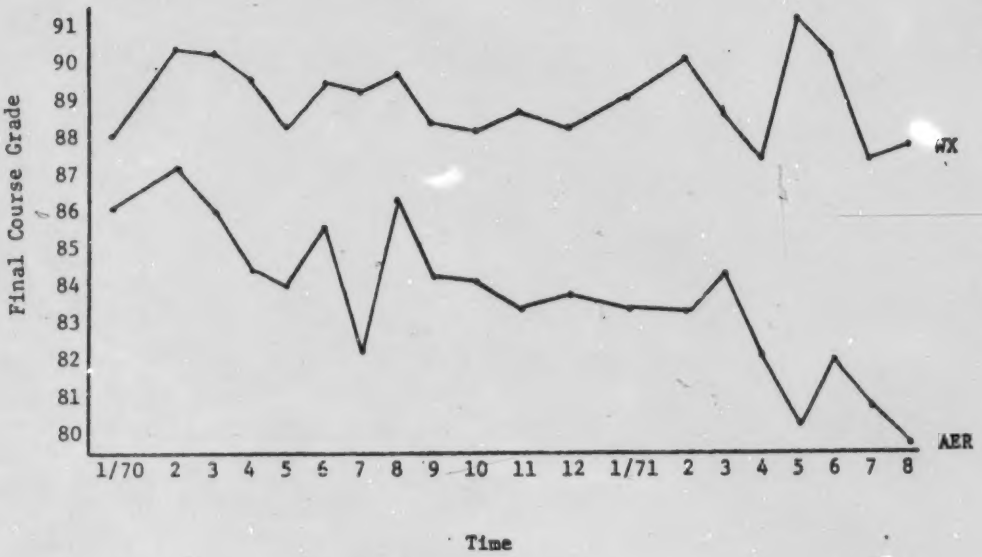


Figure 3. AQE General Score, by Course and Time

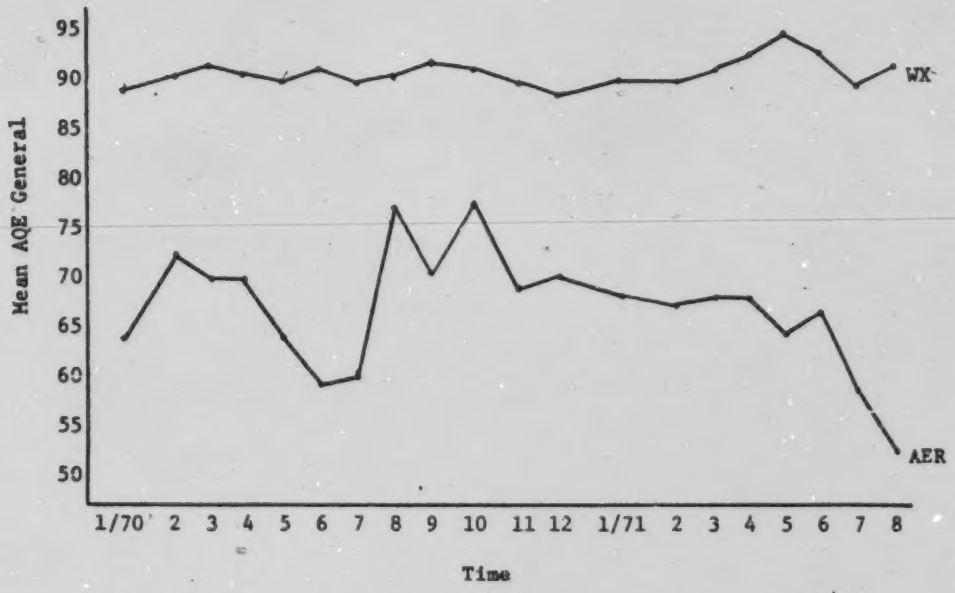
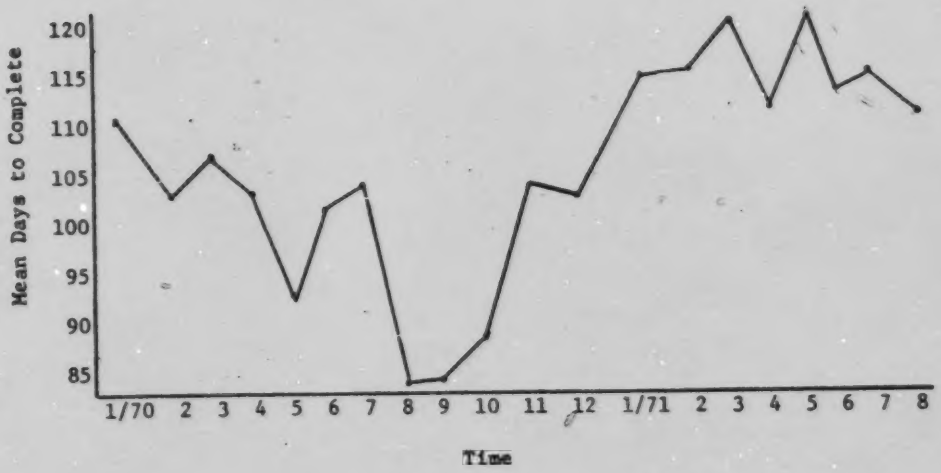


Figure 4 . Speed of Completion for AER Course, Over Time



their interest in school is probably higher than for enlistees who enter the course at other times. This greater academic orientation of the students who graduate from the course in September and October could easily account for the greater performance exhibited in the course at these times.

This created a problem for the determination of the appropriate baseline for AER performance. Recall that the design was such that a baseline was constructed from the year before study was started, and a Hawthorne condition was employed early in the program. Although it was unknown at the time, this Hawthorne condition (run in September and October) exactly coincided with the increase in performance brought on by the more highly academically-oriented June graduates from school. Consequently, this group is not a meaningful comparison point for evaluating effects of the incentive systems.

However, the original baseline was still available. But there were problems here as well. First, ability was dropping from the beginning of the year-long baseline to the end, and it continued to drop through the incentive program. Thus, taking the whole year as a baseline would represent an ability level substantially higher than the ability level of students in the course at the time of the incentive program. Consequently, it was decided to select as a baseline students who graduated from the course from January 1971 until the start of the first condition (Hawthorne). This group was still higher in ability than the group in the incentive program (AQE General of 66.7 vs. 51.2), but it was at least closer than using the whole baseline.

A second problem with the AER baseline was determining time to complete the course. Until the start of the program, instructors did not keep records of the number of hours a student spend in each block. When the research program was started, instructors were asked to do this. Before that time, the only speed data available consisted of the date the student started the course and the date he graduated. However, the number of absences and holidays were also recorded. Consequently, an estimate of time to complete the AER course could be made for the baseline data. This was accomplished by calculating the number of calendar days a person was in the course and subtracting weekends, holidays and absences. While the resulting number of days in the course could readily be converted to total hours and mean hours per block (total hours divided by 6), means for the individual blocks were obviously not available.

Another set of baseline data was also collected after the incentive program was completed. It was felt that an indication of the effects of removing the incentive system would be valuable. To obtain this baseline date, performance measures were obtained on a sample of students from each course who started and finished the course after the incentive program was terminated. Instructors had also been asked to continue administering the attitude instruments to the students in this post incentive system baseline, but there was apparently some confusion about this, and they did not do so. Consequently, only performance data are available for this post baseline.

Finally, another type of baseline data was also collected. It was felt possible that conditions at the base could have affected the performance of the students at Chanute in general. Such things as changes in administration, political or social incidents, etc., could have some affect on performance. Consequently, performance data from five other courses (Aerospace Ground Equipment Repairman, 3ABR24133; Aircraft Environmental Systems Repairman, 3ABR42231; Aircraft Pneudraulic Repairman, 3ABR42132; Jet Engine Mechanic, 3ABR432340; General Purpose Vehicle Repairman, 3ABR47330) at the base were collected. Samples were taken of 25 students who graduated from each course at each phase of the incentive project (Baseline, Hawthorne, Incentive systems 1, 2, and 3 and Post Baseline). Thus, six samples of 25 each were taken from each of the five courses. Means for each of the conditions across the five courses were computed. These means were Baseline=85.1; Hawthorne=85.1; Incentive System 1=85.0; Incentive System 2=83.8; Incentive System 3=83.4; Post Baseline=83.1. Thus, the maximum difference was 2 points on a 100 point exam. These data indicate that there were no strong base-wide performance changes during the time the incentive program was in operation.

C. Checks on the Manipulations

In a study such as this where one attempts to generate certain experimental conditions, it is important to determine whether the subjects perceive the experimental conditions as they were intended to perceive them. For example, the first treatment attached rewards to performance. It is therefore important to ascertain whether the students actually perceived that there was a higher degree of relationship between their performance and their rewards in the first incentive system than had existed previously.

To do this, questionnaires were designed and given to students during the Hawthorne condition and once during the course of each incentive system. The questionnaires were given about half way through each condition. The purpose was to measure: a) perceived relationships between performance and rewards (P-R), and b) perceived relationships between effort and rewards (E-R). It is expected that P-R perceptions would be higher for the first incentive system than for the Hawthorne condition. Furthermore, P-R perceptions should be lower in the second incentive system than in the first since the second incentive system did not tie rewards to performance, but rather to effort. Finally, E-R perceptions should show an increase from the first incentive system to the second since the second system was designed to give rewards on the basis of effort.

To measure P-R perceptions, trainees were asked to rate the chances in 10 that high performance (top 25%) would result in a high level of rewards. In the Weather course performance was defined as grades on exams, while performance for the Electrical course was defined as speed as well as scores on exams. Separate items were used for speed and exam scores. E-R perceptions were measured in an analogous fashion. See Appendix U, part II, for the complete questionnaire used for both courses.

The means of these questionnaire items by course and treatment are presented in Table 3. Item by item means and standard deviations for the entire questionnaire are presented in Appendix V. Inspection of these data indicated that the trends for the two courses were quite similar, so for ease of interpretation, simple means for P-R and E-R perceptions were calculated across courses. These are presented in Figure 5.

This figure shows clearly that P-R perceptions were increased from the Hawthorne condition to the first incentive system. The mean Hawthorne P-R perception was 7.33 while the mean for incentive system 1 was 9.11. To compare this difference, tests of significance on the three sets of means making up these values (AER performance, AER speed, and WX performance) were computed. All were significant, $p < .05$, $p < .01$, $p < .001$, respectively.

The first graph in Figure 5 also indicates that, as expected, P-R perceptions decreased from the first incentive system to the second. For the three variables making up the mean in the figure (AER performance, AER speed, and WX performance) the decrease from the first incentive condition to the second was significant ($p<.05$) for only AER performance, but each was in the predicted direction.

The data are not so encouraging for E-R perceptions. Recall that it was expected that E-R perceptions should rise from the first incentive system to the second. The second graph in Figure 5 shows that the reverse happened. While the decrease is not significant, it is consistent across E-R measures of AER performance, AER speed, and WX performance. This indicates that the second incentive system did not result in trainees perceiving that rewards were based on effort.

In summary, the manipulation checks indicated that the first incentive system was perceived as intended--trainees felt rewards (incentives) were being given on the basis of their performance. However, trainees did not feel that rewards were given on the basis of effort in the second incentive system.

D. Performance Effects

The dependent variable of central significance in this experimental program was performance. Consequently, we shall discuss the performance data in some detail. Three classes of performance data were employed in this study. The first dealt with examination performance in the courses per se; specifically, scores on exams in the WX course, and scores on exams and speed of completing the course in AER. The second group of performance measures are those behavioral measures which were not directly rewarded by the incentive system, but which still are related to student performance. These include amount of remedial instruction, frequency of block failures, frequency of probations, and frequency of instructor counseling. The final performance measures are those dealing with self

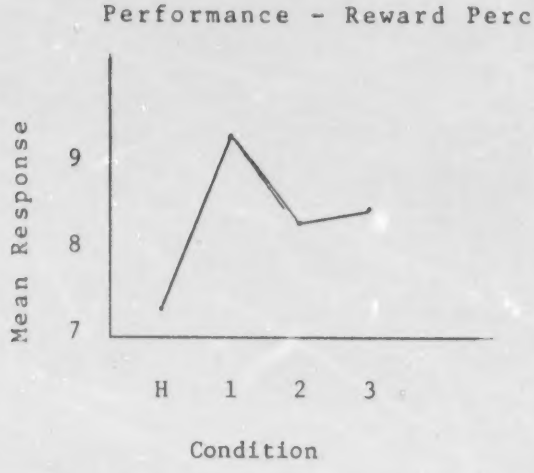
Table 3. Checks on the Manipulations: by Course

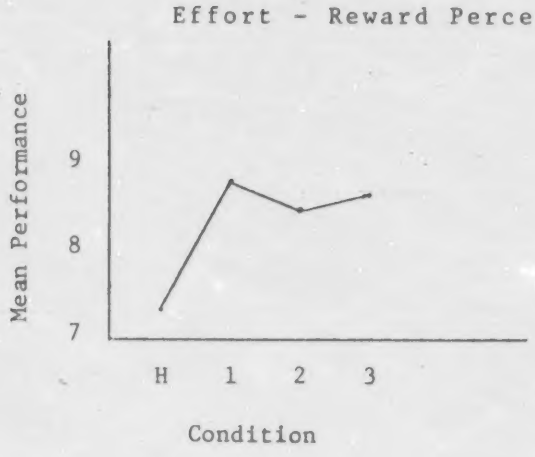
VARIABLE	MEANS H	1	2	3
AER P-R(Performance)	7.97	9.04	7.90	8.34
AER P-R(Speed)	7.56	9.08	8.40	8.44
WX P-R	6.46	9.22	8.89	9.04
AER E-R	7.90	8.92	8.27	8.61
WX E-R	6.90	8.88	8.70	8.79

Ns: AER - H=41, 1=26, 2=34, 3=177.

WX - H=48, 1=50, 2=39, 3=24.

Figure 5 . Checks on the Manipulations: Across Courses





and instructor ratings of effort.

1. Primary Performance Measures

Performance data for the WX course are presented in Table 4 and Figure 6. The table presents raw performance by block, mean block performance, mean final course grade, as well as sample sizes and standard deviations. Figure 6 requires some explanation. On the abcissa of each figure are the various conditions: B=baseline, H=Hawthorne, 1=first incentive condition, 2=second incentive condition, 3=thrid incentive condition. The final point on the abcissa (PB) indicates the post baseline condition. Recall that this baseline was taken after the incentive system ended and consists of data from trainees who entered the course after the incentive system was over.

Inspection of Figure 6 indicates that the incentive program did not have a strong effect on performance in the WX course. The largest positive effect was for the first incentive system, and was less than 2 points above the baseline. While this increase is highly statistically significant due to the large sample sizes, for practical purposes it is quite small. Furthermore, these data indicate that the third incentive system actually had a very slight negative effect on performance. Finally, when the incentive program was over, performance increased to a level slightly above the original baseline. Once again, however, the differences are very small. Clearly, these findings indicate that the incentive system is not having much positive or negative effect on course performance in the WX course.

Analogous data are presented for the AER course in Table 5 and Figure 7. Recall that the AER course is self paced and that both scores on exams and speed of completion are relevant dependent variables. Also, note that in contrast to the WX data, no Hawthorne condition is presented due to the baseline considerations discussed previously. The figure indicates that for exam scores the incentive conditions result in moderate decreases in performance, averaging about 4 percentage points below the baseline. Furthermore, there were no real differences in performance for the three incentive conditions. Finally, performance decreased in the post baseline conditions.

However, as discussed earlier, the incentive system for the AER course was designed so that speed of completion rather than exam scores was given the greater weight. To the extent that going through the material more quickly results in lower exam scores, we would expect some decrease in score if speed was increased.

Figure 8 presents the speed data for the AER course. The figure shows the mean number of class days taken to complete the course. Note that the mean number of class days is always equal to the mean number of hours to complete each block (Table 5). This is true since there were 6 blocks and 6 hours of class time per day. Therefore, mean hours per block times 6 blocks divided by 6 hours per day equals number of class days.

Table 4. Raw Course Performance Data - Weather Course

Variable	Base.			Hawth.			Trt 1			Trt 2			Trt 3			P.B.		
	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N
Block 1	86.1	5.9	584	86.9	5.9	91	89.7	5.2	129	87.8	4.4	58	88.8	5.1	14	89.8	4.3	19
Block 2	90.2	5.1	581	90.4	4.9	91	92.9	5.0	107	91.1	4.4	74	90.2	3.3	12	91.5	4.6	19
Block 3	89.8	3.9	584	89.9	4.1	102	89.9	3.8	182	89.5	4.5	93	85.3	6.5	22	90.8	5.3	19
Final Course Grade	88.6	4.3	583	88.2	4.6	102	89.0	4.4	163	90.3	4.0	92	87.3	5.9	22	90.7	4.2	19
Mean Block Performance	88.4	4.6	700	89.0	4.4	179	90.1	4.4	244	89.7	4.3	119	87.2	5.7	40	90.7	4.2	19

Figure 6: Weather Course Performance

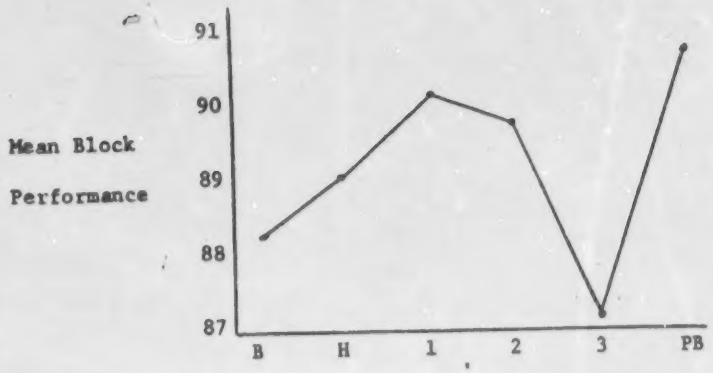
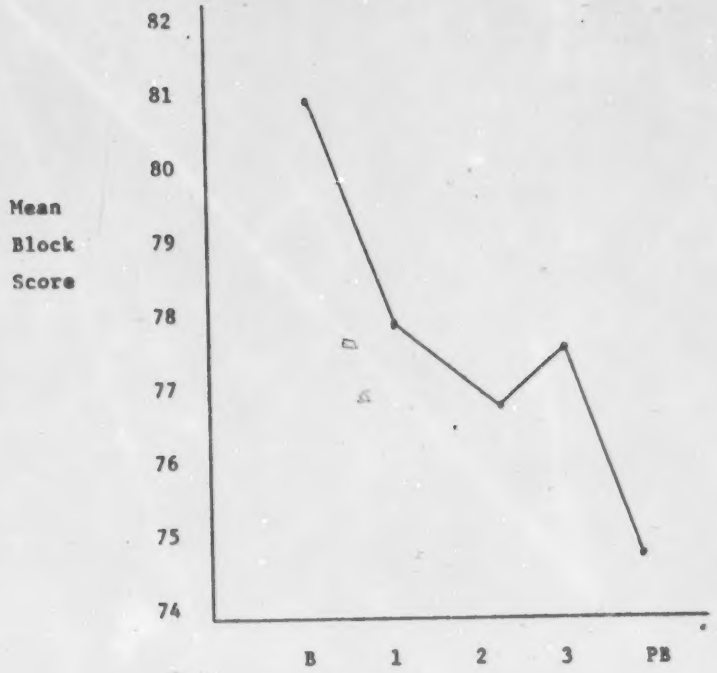


Table 5. Raw Course Performance: Electrical

Variable	Base.			Trt. 1			Trt. 2			Trt. 3			P.B.		
	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N
Exam Score															
Block 1	83.6	6.8	448	81.1	7.9	91	77.7	9.5	208	76.5	8.9	91	74.7	9.3	72
Block 2	82.5	7.4	448	74.0	9.1	82	77.8	9.6	192	77.7	9.9	135	78.2	10.3	72
Block 3	79.9	8.4	447	69.4	9.1	91	71.8	8.9	179	72.5	9.2	127	75.2	10.0	72
Block 4	78.5	8.1	448	63.5	7.8	84	63.9	8.0	131	77.5	7.1	81	68.6	9.4	72
Block 5	80.4	8.0	408	70.8	9.1	159	64.3	6.9	125	71.8	8.7	122	69.0	9.0	72
Block 6	85.9	6.2	382	84.0	7.3	172	82.7	8.1	108	81.8	8.8	117	82.2	7.1	72
Final Course Grade	82.5	5.1	382	81.5	6.2	173	75.7	6.4	108	75.3	6.9	117	74.7	7.3	72
Mean Block Perf.	81.6	5.6	448	77.8	7.8	290	76.6	6.6	321	77.2	7.1	308	74.7	7.5	72
Speed															
Block 1				96.8	28.4	91	90.5	28.6	206	65.3	18.4	91	69.2	19.6	72
Block 2				47.0	17.3	82	48.8	19.2	191	47.5	18.5	135	42.5	16.1	72
Block 3				91.3	29.8	93	94.6	28.4	180	91.0	43.0	141	81.8	21.2	72
Block 4				77.1	32.2	84	74.8	29.0	131	74.6	29.9	82	78.4	23.6	72
Block 5				80.0	21.9	163	78.0	18.7	125	82.1	79.0	125	82.1	23.2	72
Block 6				46.5	8.1	172	43.6	9.2	107	38.2	82.2	115	38.2	7.2	72
Mean Block Hours	78.3	24.6	448	80.2	37.5	290	83.8	36.5	319	72.2	28.0	307	65.4	14.7	72

Figure 7: Electrical Course Performance:

Exam Score



The figure indicates that days to complete the course increased for the first two incentive systems, students under incentive system two taking almost 6 days longer to complete the course than students in the baseline. However, incentive system three showed a large increase in speed over both the baseline and the other two incentive systems. Students in incentive system three finished the course six class days sooner than students in the baseline. However, in the post baseline students were substantially faster than any other condition, almost seven days faster than the third incentive system and 13 days faster than the baseline.

The picture that emerges from these data is that the first two incentive systems had a moderate negative effect on exam scores and speed of completion, while the third system increased speed of completion. The post baseline confuses the interpretation substantially since in this time period exam scores decreased while speed increased.

However, there is information that explains the results in this AER post baseline. First, the criterion for passing the block exams was lowered during the post baseline period. Thus, one would expect lower scores and faster times. Secondly, a program was instituted at the start of this post baseline period wherein slower students were all put on one shift and given special attention. These two facts taken together indicate that the AER post baseline data cannot be compared with the data in the incentive systems.

A problem which makes the interpretation of the incentive condition data more difficult is that the level of ability of the students in the two courseswas changing dramatically over the various conditions. Figure 9 indicates the magnitude of these changes in ability. The figure presents the man of the four AQE scales (General, Administrative, Mechanical, Electrical) for each condition and each course.

This figure shows that both courses had a near linear decrease in ability from the beginning of the program to the third treatment, then an increase after the program was over. While the decrease was strong in the WX course (10% drop), it was overwhelming in the AER course (28% drop). It should be noted that these decreases were not due in any way to the program <u>per se</u>. They were due solely to the nature of the students who happened to be admitted to the two courses during the incentive program. From our point of view this was extremely unfortunate since it makes assessment of the effects of the program a most difficult task. What is even worse is that in the post baseline, which could also have been used for comparison purposes, ability, also by chance, increased. In the WX course it rose to a level equal to the original baseline; in AER, in increased 17%, or up to the level of incentive system one. The problem is to somehow take the ability decreaces into account in interpreting the findings.

One way to do this is to analyze derived effort scores. Recall that for the second and third incentive system points were given on the basis of going above a target score which was based on predicted

Figure 8: Electrical Course Performance:

Time to Complete Course

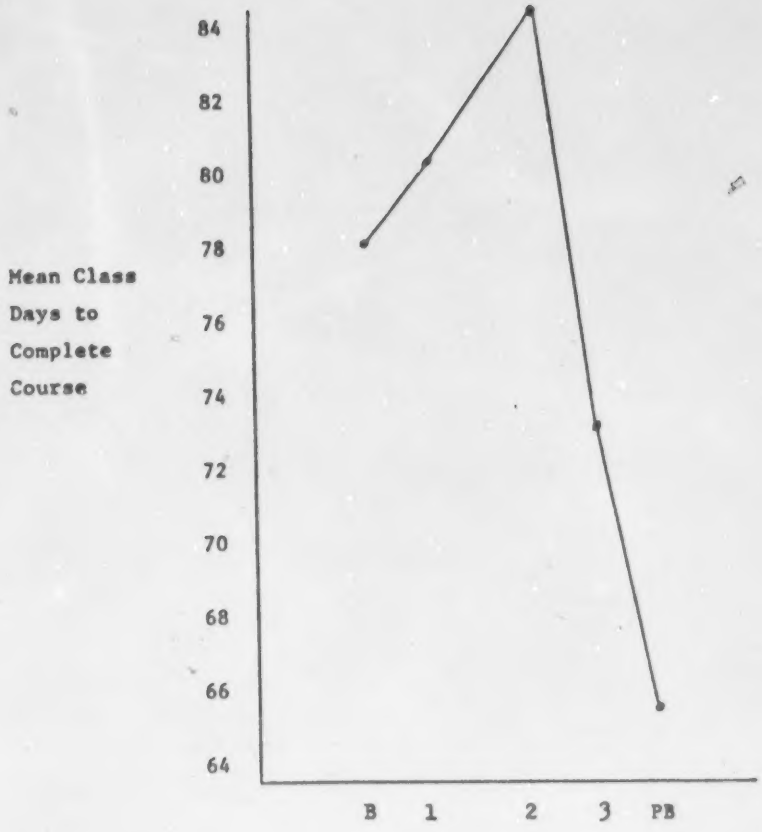
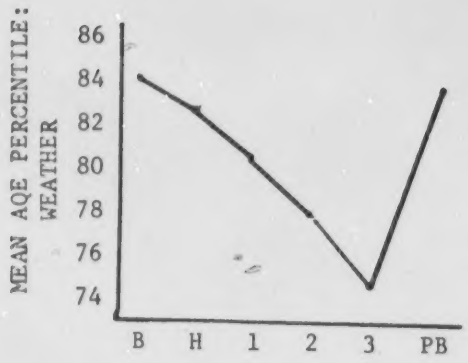
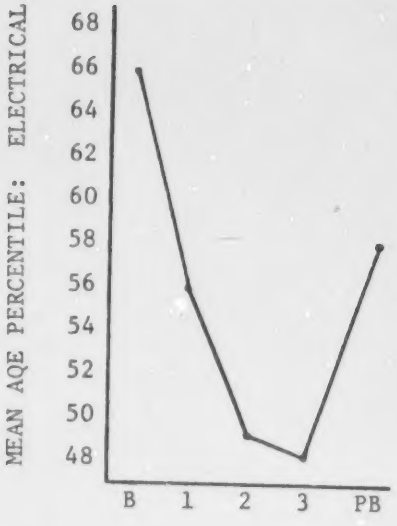


Figure 9 . Changes in Ability, by Condition





performance. This predicted performance was calculated from a regression equation which used ability data as predictors. Thus, in one sense, the derived effort score is a score which has ability partialled out, and analyses using this score are at least in the direction of controlling for ability.

To this end, derived effort scores were calculated for all subjects and analyzed. Table 6 (WX) and 7 (AER) present the results of these analyses. For the WX course, the pattern of results remains essentially unchanged. For the AER score data, the pattern changes somewhat in that incentive conditions 1 and 2 are equal to each other, and the post baseline is about equal to the third incentive system. However, as in the raw data, the highest performance still occurred in the baseline condition.

The derived effort data for AER speed presents a somewhat different picture from the raw data. Subjects in the first incentive condition finished the course about one day faster than the baseline; the second condition about two and one half days faster than the baseline; and the third condition over ten and one half days faster. As before, the post baseline was fastest of all.

2. Secondary Performance Measures

We now turn to those performance measures which were not under the direct influence of the program, but which are, nevertheless, indices of the effectiveness of the program. These include data on remedial instruction, block failures, probations, and instructor counselling.

Remedial instruction, the first variable to be discussed, consisted of supervised study sessions over and above normal class time. The trainee was required to attend these sessions when, in the instructor's opinion, his performance was unsatisfactory. Data for remedial instruction (R/I) for both courses are presented in Figure 10. These graphs clearly indicate that R/I time decreased during the incentive system as compared to the baseline. In the Weather course baseline R/I time averaged 9.0 hours per student, but was cut to 3.2 under the incentive program, representing a decrease of 64%. In the Electrical course the decrease was 28%.

Within the incentive conditions the same pattern emerged for both courses. The first and third incentive systems were about equal and both were superior to the second system. It is noteworthy that at least for the Weather course, the Hawthorne condition resulted in just as strong an effect as the incentive systems. This pattern repeats inself, and will be discussed later. The figure also shows that in the WX course R/I increased after the incentive program to near the level of the baseline. However, in the AER Course R/I decreased below the level of any of the incentive systems after the program was over. However, this decrease is easily explained by the change in criterion, and the special instruction for poorer students in the post

Table 6. Derived Effort Data: Weather Course

Variable	Base.			Hawth.			Trt. 1			Trt. 2			Trt. 3			P.B.		
	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N
Block 1	.18	5.3	581	1.02	5.2	90	4.13	4.7	128	3.12	5.0	58	3.78	4.3	14	4.11	4.2	19
Block 2	.54	4.7	579	.83	4.6	91	3.67	4.5	106	2.42	4.7	74	1.61	3.0	12	2.25	5.2	19
Block 3	-.06	3.8	582	.69	4.0	102	.71	3.4	182	.60	4.7	93	-2.77	6.8	22	1.56	5.5	19
Mean Block	-.06	4.1	695	.61	4.1	117	1.92	4.0	243	1.82	4.4	118	- .06	6.0	40	2.29	4.7	20

Table 7. Derived Effort Data: Electrical Course

Variable	Base.			Trt. 1			Trt. 2			Trt. 3			P.B.		
	$\bar{X}$		N	$\bar{X}$		N	$\bar{X}$		N	$\bar{X}$		N	$\bar{X}$		N
Score															
Block 1	- .02	6.4	448	.85	7.4	89	-1.76	46.4	200	-5.16	8.6	91	-2.70	8.0	78
Block 2	- .34	7.1	448	-3.82	9.0	76	.82	54.1	183	-2.80	9.2	134	- .79	9.0	79
Block 3	.89	7.9	448	-4.01	8.6	85	1.39	47.1	170	-3.51	8.4	126	- .34	9.0	78
Block 4	.70	7.9	448	-6.11	7.7	75	-7.22	7.8	121	2.04	75.3	80	-5.50	8.1	78
Block 5	.19	7.3	448	-8.69	8.6	158	-7.45	7.1	113	-2.74	49.8	116	-6.20	8.3	79
Block 6	.36	5.4	448	-7.71	7.1	171	- .31	28.0	107	- .70	8.2	114	- .59	6.7	78
Mean Block Score	.26	5.1	448	-3.54	7.2	284	-3.42	37.6	319	-2.35	34.8	308	-2.68	5.8	79
Time															
Block 1				15.80	28.3	90	8.10	28.0	206	-16.80	18.8	91	-16.10	17.1	79
Block 2				-11.00	16.1	82	- 9.80	18.6	191	-11.90	18.0	135	-17.20	14.0	79
Block 3				2.10	28.3	93	3.90	27.8	180	- .50	43.1	141	-13.20	19.3	79
Block 4				16.10	31.8	82	11.20	28.0	131	10.70	23.6	82	9.70	21.7	79
Block 5				3.20	21.6	162	- 1.20	18.7	124	3.00	21.1	125	- 1.00	21.7	77
Block 6				- 7.30	9.7	171	-12.20	9.9	107	-18.10	9.2	115	-20.10	8.2	74
Mean Block Time	6.67	18.55	448	5.80	24.4	290	4.20	25.1	319	- 4.00	22.2	306	- 9.50	12.6	79

Table 6. Derived Effort Data: Weather Course

Variable	Base.			Hawth.			Trt. 1			Trt. 2			Trt. 3			P.B.		
	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N	$\bar{X}$	σ	N
Block 1	.18	5.3	581	1.02	5.2	90	4.13	4.7	128	3.12	5.0	58	3.78	4.3	14	4.11	4.2	19
Block 2	.54	4.7	579	.83	4.6	91	3.67	4.5	106	2.42	4.7	74	1.61	3.0	12	2.25	5.2	19
Block 3	-.06	3.8	582	.69	4.0	102	.71	3.4	182	.60	4.7	93	-2.77	6.8	22	1.56	5.5	19
Mean Block	-.06	4.1	695	.61	4.1	117	1.92	4.0	243	1.82	4.4	118	- .06	6.0	40	2.29	4.7	20

Table 7. Derived Effort Data: Electrical Course

Variable	Base.			Trt. 1			Trt. 2			Trt. 3			P.B.		
	$\bar{X}$		N	$\bar{X}$		N	$\bar{X}$		N	$\bar{X}$		N	$\bar{X}$		N
Score															
Block 1	- .02	6.4	448	.85	7.4	89	-1.76	46.4	200	-5.16	8.6	91	-2.70	8.0	78
Block 2	- .34	7.1	448	-3.82	9.0	76	.82	54.1	183	-2.80	9.2	134	- .79	9.0	79
Block 3	.89	7.9	448	-4.01	8.6	85	1.39	47.1	170	-3.51	8.4	126	- .34	9.0	78
Block 4	.70	7.9	448	-6.11	7.7	75	-7.22	7.8	121	2.04	75.3	80	-5.50	8.1	78
Block 5	.19	7.3	448	-8.69	8.6	158	-7.45	7.1	113	-2.74	49.8	116	-6.20	8.3	79
Block 6	.36	5.4	448	-7.71	7.1	171	- .31	28.0	107	- .70	8.2	114	- .59	6.7	78
Mean Block Score	.26	5.1	448	-3.54	7.2	284	-3.42	37.6	319	-2.35	34.8	308	-2.68	5.8	79
Time															
Block 1				15.80	28.3	90	8.10	28.0	206	-16.80	18.8	91	-16.10	17.1	79
Block 2				-11.00	16.1	82	- 9.80	18.6	191	-11.90	18.0	135	-17.20	14.0	79
Block 3				2.10	28.3	93	3.90	27.8	180	- .50	43.1	141	-13.20	19.3	79
Block 4				16.10	31.8	82	11.20	28.0	131	10.70	23.6	82	9.70	21.7	79
Block 5				3.20	21.6	162	- 1.20	18.7	124	3.00	21.1	125	- 1.00	21.7	77
Block 6				- 7.30	9.7	171	-12.20	9.9	107	-18.10	9.2	115	-20.10	8.2	74
Mean Block Time	6.67	18.55	448	5.80	24.4	290	4.20	25.1	319	- 4.00	22.2	306	- 9.50	12.6	79

baseline which was discussed above.

Data on block exam failures are presented in Fuguro 11. This figure presents data for the Electrical course only since the frequency of block exam failures in the Weather course was so very low (4 failures in 1500 exams).

The figure indicates that while the first incentive condition substantially decreased block failures relative to the baseline, the second increased failures above the baseline, and the third incentive system was equal with the baseline. The Hawthorne was better than any of the incentive conditions. The post baseline was once again below the baseline. In one respect, however, it is surprising that block exam failures were lower in any of the incentive conditions. Recall that rewards were based more on speed than score in the Electrical course. One would thus expect that students would take exams earlier than in the baseline and, consequently, fail them more frequently. This increase in block exam failure certainly did not materialize in the first and third incentive systems, and such an effect in the second system was small.

Data on percentage of probations (WX) per block are presented in Figure 12. In contrast to the block failure data above, data for only the Weather probations are presented. As expected, probations were rate in Electrical (5 out of 2500 blocks). The figure shows a pattern very similar to previous figures. The incentive conditions resulted in a strong (75%) decrease in probations, over the baseline; the first and third incentive systems were about equal in effectiveness, but better than the second system; the Hawthorne condition was an effective as the incentive systems, as was the post baseline.

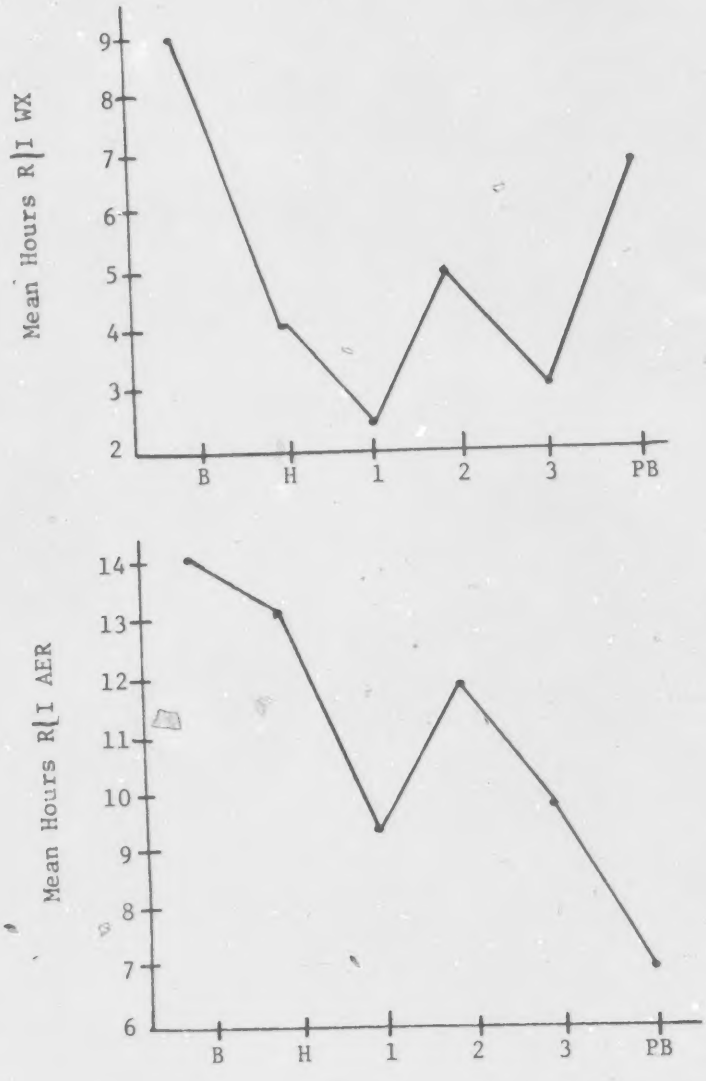
The final measure in this group of secondary performance measures is the mean number of counselling sessions. These sessions were held by the instructor with a student individually when the instructor felt the student's performance was unsatisfactory.

Data for both courses are presented in Figure 13. They indicate no real differences for the Electrical course, until the post baseline where a decrease was observed. Substantial decreases occurred for the Weather course, especially for the first incentive system. Once again, however, the Hawthorne comes close to the level of the incentive systems, as was the post baseline.

3. Ratings of Effort

The third class of performance measures consists of self and instructor ratings of the amount of effort expended by the students in technical training. The items comprising this measure were generated after interviewing instructors on what they felt constituted high effort in the courses. Nine items were ultimately used, eight that dealt with

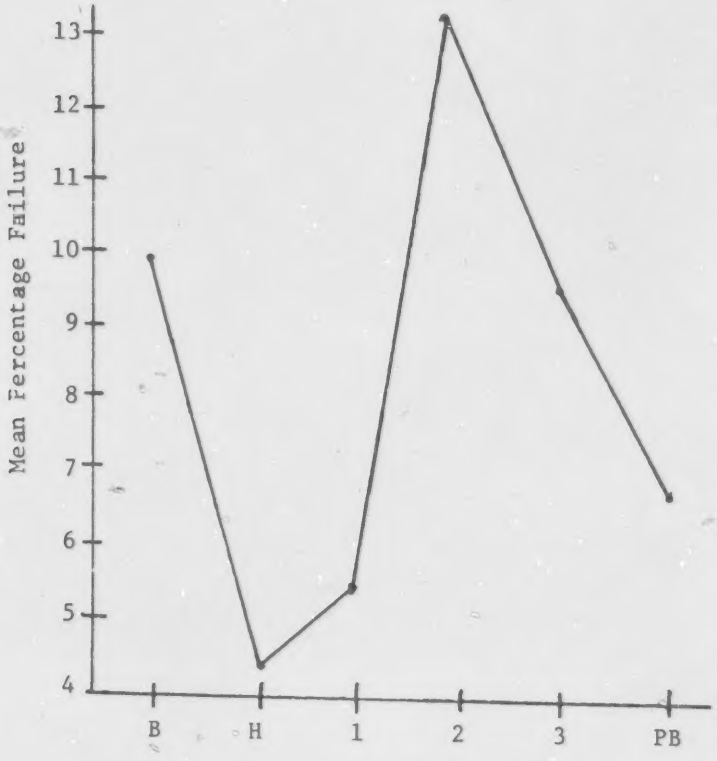
Figure 10 Mean Hours Remedial Instruction (R|I), Over Entire Course



*Sample sizes refer to the number of blocks making up each mean, not the number of individual subjects. WX: B=405; H=537; 1=729; 2=357; 3=120; PB=66. AER: B=491; H=473; 1=667; 2=907; 3=601; PB=432.

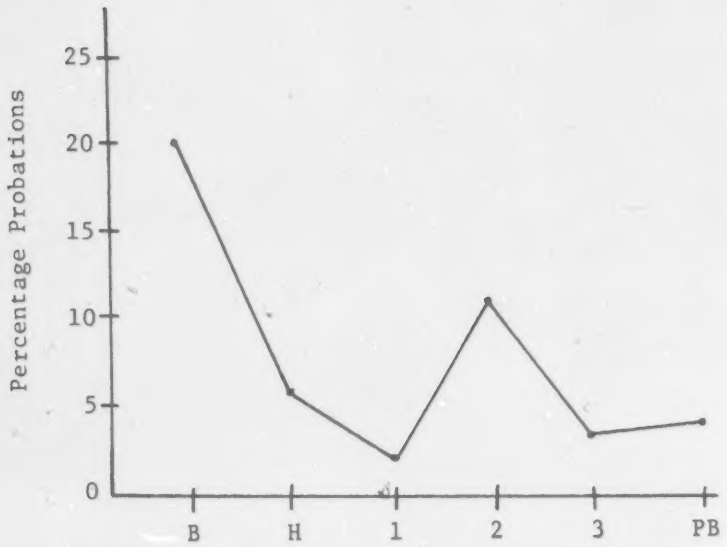
Figure 11 Mean Percentage of Block Exam Failures*

Electrical Course



* Number of blocks upon which each mean is based: B=491; H=473; 1=667; 2=907; 3=601; PB=432.

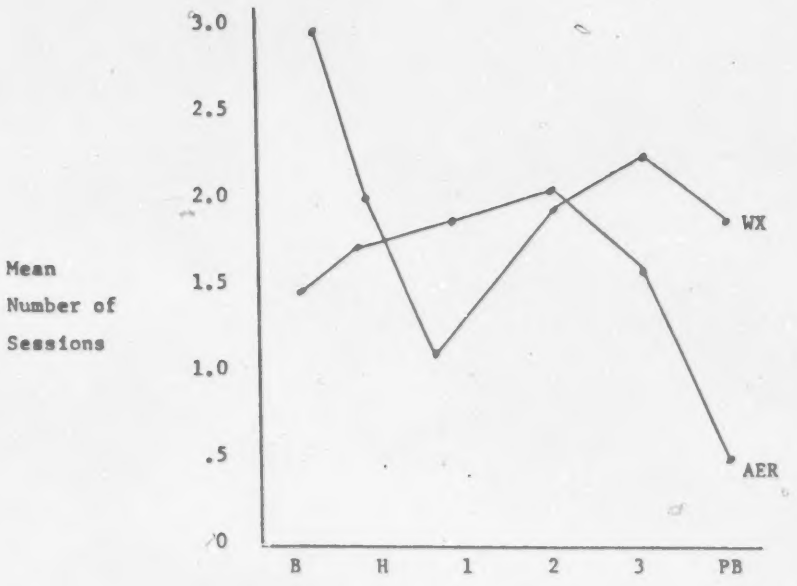
Figure 12 Mean Percentage of Probations Per Block Weather Course



* Number of block upon which each mean is based: B=405; H=537; 1=729; 2=357; 3=120; PB=66

Figure 13 Mean Number of Couseling Sessions,

Both Courses, Over the Entire Course



Number of individuals upon whom means are based -

Weather: B = 134; H = 173; 1 = 232; 2 = 119; 3 = 40; PB = 22.

Electrical: B = 119; H = 240; 1 = 282; 2 = 305; 3 = 291; PB = 72.

specific aspects of effort such as asking questions, using time efficiently, degree of energy expended, etc., and one item which dealt with overall effort.

Two forms of the measure were used, one for students to rate themselves, the other for the instructors to rate the students. The content of the items was identical for both forms. (See Appendix L for copies of the instruments.) The students rated themselves once during the course during the week they graduate from the course. The instructors were asked to rate each of their students at the completion of each block. However, in many cases the instructors did not produce a complete set of ratings.

In an attempt to determine the reliability of the instrument, several reliability checks were made. Test-retest reliability estimates were made with the instructor ratings by having instructors in the Weather course (18 instructors rating 114 students) and the Electrical course (32 instructors rating 115 students) re-rate these students after a 7 - 10 day time span. Reliability for the WX instructor was .74 and .76 for the AER instructors.

A second type of reliability estimate was obtained by correlating the ratings of two different instructors on the same student. Values obtained were .51 (N =77) for WX, and .63 (N = 122) for AER.

Finally internal consistency reliabilities were calculated (Cronbach alpha). Resulting values were .91. (N= 144) for WX instructors; .87 (N = 115) for AER instructors; .67 (N = 55) for WX students; and .76 (N = 48) for AER students.

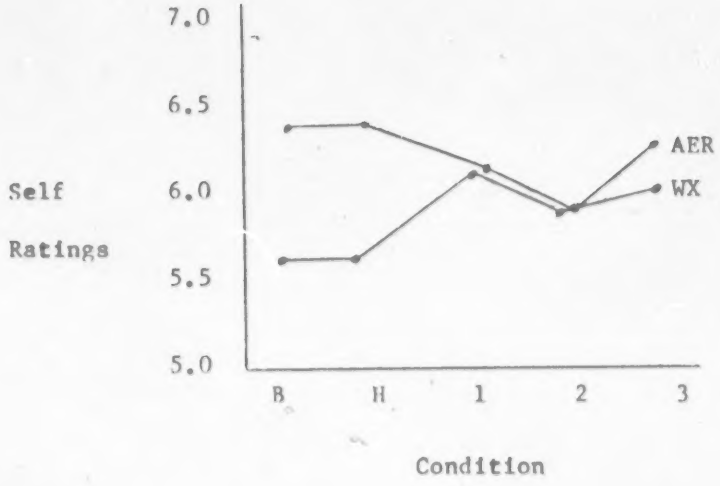
All in all, the instrument displayed satisfactory reliability. Instructors were fairly consistent across time and across students, and the item seem to be measuring the same construct for the instructors. Likewise, the items of the measure seems to be measuring the same construct for the students. However, there is good evidence that somehow the students were not responding to the instrument in the same way as were the instructors. Correlations between students' self ratings and instructor ratings (i.e., ratings on the same person) were .03 (N = 73) for WX and .14 (N = 57) for AER. Clearly, the students and instructors did not agree on their perceptions of relative effort.

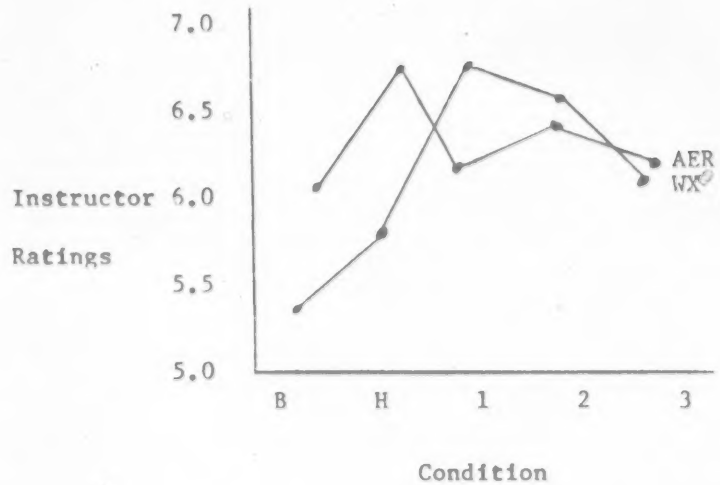
Results of the effort ratings are presented in Table 8 and Figure 14. The data presented here are composite based on the sum of the nine items of the instrument. (Items were reverse scored where appropriate.) Although the difference across conditions are highly significant due to the large sample sizes, the figure indicates that the composite self rating did not vary much across conditions for either course. The students in both courses felt they were exerting more than average effort (average effort = 5.0), but the incentive systems did not greatly increase or decrease self perceptions of effort.

Table 8 . Summary of Self and Instructor Effort Ratings

	B	H	1	2	3	MSW	p
WX Self	5.6	5.6	5.0	5.8	6.0	1.47	.01
	N=128	40	148	101	31		
WX Inst.	5.4	5.7	5.7	6.5	5.9	2.04	.0000
	N= 63	20	101	71	30		
AER Self	6.3	6.3	6.0	5.8	6.4	1.61	.006
	N=112	115	140	95	95		
AER Inst.	6.0	6.7	6.1	6.3	6.0	2.21	.005
	N=108	73	220	63	45		

Figure 14. Composite Self and Instructor Ratings of Effort by Course and Condition





Differences were somewhat greater for instructor ratings of effort. In the WX course, ratings of effort were higher under all three incentive systems than in the baseline, but showed a decrease from the first incentive system to the third. In the AER course, there were no differences across the three incentive conditions, and the incentive conditions were equal to the baseline. Ratings of effort increased in the AER Hawthorne condition.

The last item on the effort rating questionnaire dealt with overall effort. It is somewhat instructive to examine the data for this item. Mean self and instructor ratings are presented in Figure 15. Results for AER course are very similar to the findings with the composite effort score. However, for both self and instructor ratings, effort was seen as being higher in the incentive conditions than in the baseline. However, there were no real differences across the three incentive conditions.

E. Attitudinal Effects

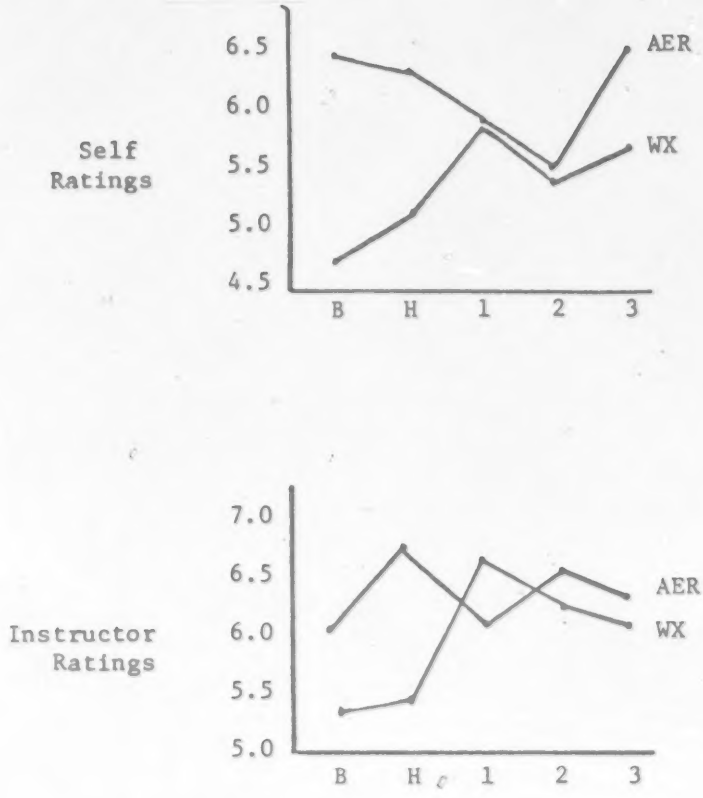
The second major class of dependent variables (next to performance data) is attitude data. While the effects of any incentive system on performance are of first importance, effects of such systems on the attitudes of those in the system are also of great importance. Consequently, several types of attitude data were collected. As described previously, five attitude areas were tapped. These were attitudes toward re-enlistment (Appendix O), job satisfaction (Appendix N), course evaluation (Appendix M), overall attitude towards the Air Force (Appendix M), and social desirability (Appendix M). This last was not really an attitude scale *per se*, but an attempt to ascertain whether students were using a social desirability response set in completing the attitude questionnaire.

These five scales were physically located on three questionnaires. The re-enlistment scale and job satisfaction scales were on separate questionnaires, while the items for the overall Air Force, course critique, and social desirability were intermixed in the third questionnaire. All instruments were in the form of five-point Likert scales with the exception of the re-enlistment scale which was a 9-point Likert scale.

This set of questionnaires was to be administered as the student graduated from the course. They were given during the last week of the course, and were administered by the instructors for that section of the course. However, based on the sample sizes for some of the scales in some of the experimental conditions, each of the questionnaires was not routinely administered.

The first scale to be discussed is the social desirability scale. Means for the 10 items of this scale by course and condition are presented in Table 9. This table presents means of all the five attitude scales as well as sample sizes (N), the error term (NSW) for a 1 x 5 analysis of variance on these means, and the p-values associated with this analysis.

Figure 15. Self and Instructor Ratings of Effort: Overall Item (#9)



Inspection of the means for the social desirability scale for the two courses indicates that students were responding at the neutral point of the scale in both courses and across all conditions. Furthermore, the variability in responses was quite low. Although it is somewhat difficult to interpret the absolute magnitude of these means, it appears that trainees were adopting a mild social desirability response set. Recall that the items on this scale deal with behaviors that are "socially desirable," but which very few people actually do. (For example, "You never make a long trip without checking the safety of your car as required by Air Force regulations." Agreeing with this item, for most people, represents the use of a social desirability response set.)

Thus, a mean value near neutral would seem somewhat high since it indicates that subjects are neither disagreeing nor agreeing with items which under low social desirability response set conditions they would disagree with.

This problem is not too serious, however, since the level of social desirability was near equal across conditions. There was a slight gradual increase from the beginning of the project to the end, but the difference was very small (two tenths of a scale point). Due to the large sample sizes (468 in WX, 599 in AER), these differences were statistically significant, but again, the absolute differences were too small to be meaningful.

The second attitude scale in Table 9 is the re-enlistment scale. It included five items dealing with whether the trainee would volunteer if there were no draft, whether he would tell a friend to volunteer if there were no draft, whether he would re-enlist for a second four years if given the chance, whether he will make a career of the Air Force when it is time to re-enlist, and whether he would advise a friend to re-enlist.

The means for these items are presented graphically in Figure 16. This figure clearly shows a large increase in positive attitudes towards re-enlistment for trainees in the incentive conditions, and an increase in these positive attitudes as one goes from the first incentive condition to the third. This was true of both courses. The mean for the AER course in the third incentive system was based on only seven cases, but the trend is supported by the WX course with a much larger sample size. Furthermore, the pattern for each of the five individual items (Table 10) is identical to the means presented in Figure 16.

It is important to note that these differences represent substantial differences in responses. The means in the baseline condition represent a response of slightly above "Probably not, there is a slight chance I might, but I probably wouldn't." The means in the third incentive system are above "I'd say there's a 50-50 chance. I might or I might not." Put another way, across both courses, only 9.5% of the

Table 9. Summary of Attitude Data: by Course and Condition

Scale	B	H	1	2	3	MSW	p
WEATHER							
Social Desirability	2.7	2.8	2.9	2.9	2.9	.15	.0001
	N=131	55	148	101	33		
Re-enlistment	3.1	2.8	3.1	4.0	5.1	3.84	.0001
	N=116	15	83	76	21		
Overall Air Force	2.4	2.6	2.7	3.0	3.0	.50	.0000
	N=131	55	148	101	33		
Job Satisfaction	3.0	3.0	3.2	3.3	3.2	.33	.0009
	N=117	15	81	80	21		
Course Critique	3.3	3.3	3.3	3.3	3.4	.15	.21
	N=132	55	148	101	33		
AER							
Social Desireability	2.9	2.9	3.0	3.0	3.1	.15	.005
	N=116	150	135	95	103		
Re-enlistment	3.8	4.0	4.5	4.4	5.7	3.86	.08
	N= 32	67	70	41	7		
Overall Air Force	3.0	3.1	2.9	3.1	3.2	.43	.02
	N=116	150	135	95	103		
Job Satisfaction	3.4	3.4	3.5	3.5	3.6	.24	.77
	N= 32	67	82	44	7		
Course Critique	3.4	3.5	3.5	3.4	3.4	.10	.03
	N=116	150	135	95	103		

trainees in the baseline were above neutral on attitudes toward re-enlistment while this figure was 41.8% in incentive system three.

It is important to note, however, that most of the increase in re-enlistment attitudes came in the third (financial) incentive system. Systems one and two were generally higher than the baseline or Hawthorne, but the difference was not nearly so strong.

The next attitude scale to be considered is the scale dealing with overall Air Force attitudes. Recall that the 11 items on this scale (Appendix M) dealt with attitudes toward Air Force pay, efficiency of Air Force operations, Air Force concern about individuals, importance of the job the Air Force is doing, extent to which Air Force uses a person's skills, etc. Means for this scale by course and condition were presented earlier in Table 9. Figure 17 graphically displays these means. This figure indicates the same pattern of findings as the re-enlistment data, but the differences are less strong. The WX students, who showed the stronger effects, showed an increase of only six tenths of a scale point from the baseline to incentive system three. While this difference is small, it was consistent across the items of the scale. As Appendix W shows, in 22 comparisons (made across the 11 items in the two courses) of the baseline mean with the incentive system three mean 21 showed a more positive attitude in the incentive condition.

Examining the individual items, those showing the largest increases under the incentive conditions dealt with the efficiency of the Air Force (Item 8), the concern of the Air Force about the individual (Item 10), the quality of the Air Force living conditions (Item 23), and the trainee's pride at being in the Air Force (Item 42).

Taken as a whole, data from the overall Air Force scale shows that students' attitudes toward the Air Force were slightly, but consistently better in the incentive conditions than during the baseline. As with the re-enlistment attitudes, overall Air Force attitudes rose from incentive condition three. However, even in incentive condition three, attitudes toward the Air Force were only about neutral.

The next attitude measure deals with the course evaluation. This scale contains 27 items (see Appendix M for complete scale) dealing with such aspects of the course as instructor presentation, physical characteristics of the classroom setting, training aids, currentness of training material, quality of tests, etc. Since the incentive system did not change the courses themselves in any way, it was not expected that student course evaluations should change as a result of the incentive system. However, it was felt possible that some attitudinal carry-over might occur, so these data were collected. Table 9 presented previously contains the means for this scale by course and condition. Note that negatively worded items were reverse scored so that the higher the mean, the more positive the attitude. These means are presented graphically

Figure 16. Mean Re-enlistment Attitudes by Course and Condition

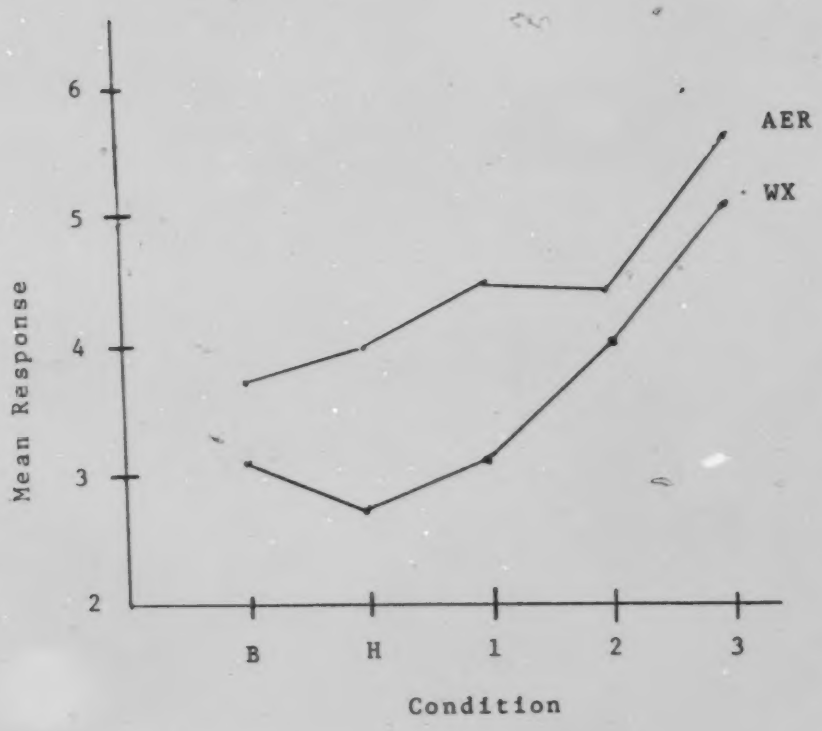


Table 10. Attitudes Towards Re-enlistment
(Student Attitude Questionnaire, Appendix O)

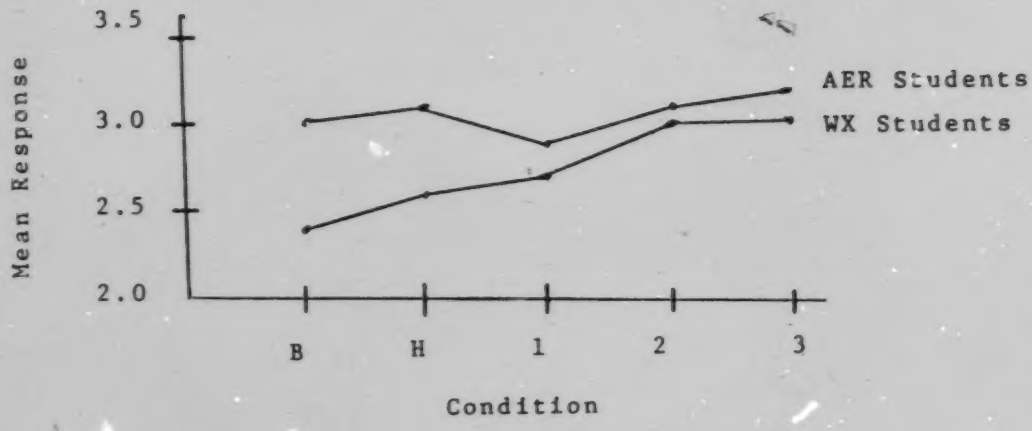
Weather Students

Item	B(N=114)		H(N=15)		1(N=79)		2(N=78)		3(N=21)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
1	3.9	2.8	3.7	2.4	3.8	2.6	5.1	2.6	6.0	2.6
2	3.0	2.4	2.9	1.8	3.0	2.3	3.8	2.3	5.0	2.5
3	2.9	2.2	2.8	1.9	3.1	2.1	3.9	2.1	4.8	2.0
4	2.8	2.1	2.4	1.3	3.0	2.0	3.7	2.1	4.7	2.3
5	2.8	2.0	2.1	1.6	2.9	2.0	3.5	2.1	4.9	2.4

Electrical Students

	B(N=32)		H(N=66)		1(N=68)		2(N=40)		3(N=7)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
1	4.5	2.3	4.9	2.5	5.3	2.4	5.8	2.1	6.6	1.1
2	4.0	2.2	4.2	2.7	4.3	2.5	4.5	2.5	5.3	1.8
3	3.5	2.1	3.7	2.2	4.5	2.4	4.2	2.2	5.7	1.5
4	3.4	2.2	3.3	2.2	4.3	2.4	3.9	1.9	5.7	1.9
5	3.5	2.2	2.2	2.3	3.9	2.3	3.8	1.9	5.0	2.2

Figure 17. Overall Air Force Attitudes, by Course and Condition



in Figure 18. As this figure clearly indicates, there were virtually no differences across conditions in attitudes toward the two courses. The absolute value of the means corresponds to a point slightly above neutral on the scale. Individual item means and standard deviations are presented in Appendix X.

The last attitude scale to be considered in the Job Satisfaction Scale. (See Appendix N for items). The scale dealt with satisfaction with such aspects of the situation as pay, working conditions, feelings of responsibility, use of abilities, etc. Data on the composite of the 22 items, 5 point scale are presented in Figure 19. The data indicate a consistent, but very small, increase in attitude during the incentive conditions. AER students were generally more satisfied than WX students.

Inspection of the individual item means (See Appendix Y) indicates that students in both courses were generally most satisfied with the way technical instructors handle their students, the teaching competence of their instructors, and the way students got along together. They were least satisfied with the way Air Force policies were put into practice and the pay they received.

Summary of Attitude Effects

The results of the analyses of the attitude data reveal the following findings.

1. Social desirability response set was equal across all conditions.

2. Attitudes towards reinlistment increased strongly, especially in the WX course.

3. Attitudes toward the Air Force were slightly, but consistently better in the incentive program.

4. Student attitudes towards the course did not change.

5. Attitudes about job satisfaction were slightly better during the incentive program.

6. Attitude effects were generally equal for each incentive system. The only exception was re-enlistment attitudes which were more positive in system three than in the other two incentive systems.

F. Treatment Evaluation

So far we have discussed data concerning checks on the manipulations, performance data, and attitude data. In addition, it was felt valuable to assess the students' and instructors' direct reactions to the actual incentive systems themselves. To accomplish this, two questionnaires were developed, one for students and one for instructors. These questionnaires

Figure 18. Mean Course Evaluation by Course and Condition

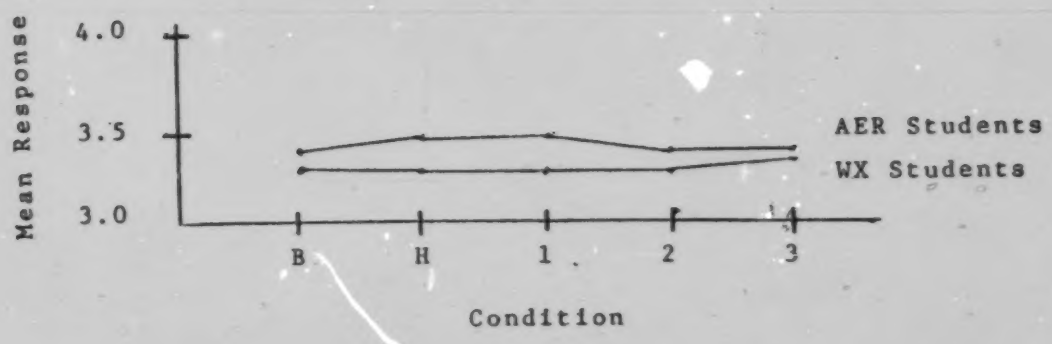
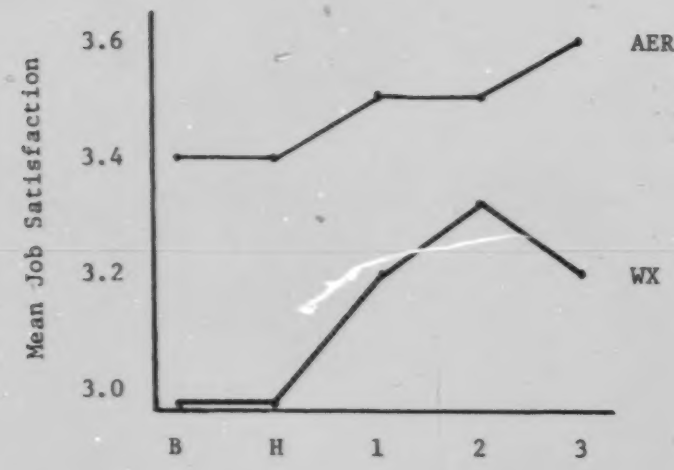


Figure 19. Means of Job Satisfaction Scale



dealt with items about the philosophy of giving incentives, perceived effects of the incentive system on performance and attitudes, logistics of the systems, the fairness of the systems, and the support given to the system. A total of 31 items were used in the student form and 16 were used for the instructor form. All items were presented in a 5-point Likert format. The complete questionnaires are presented in Appendix Z. These questionnaires were given three times, ones during each incentive system.

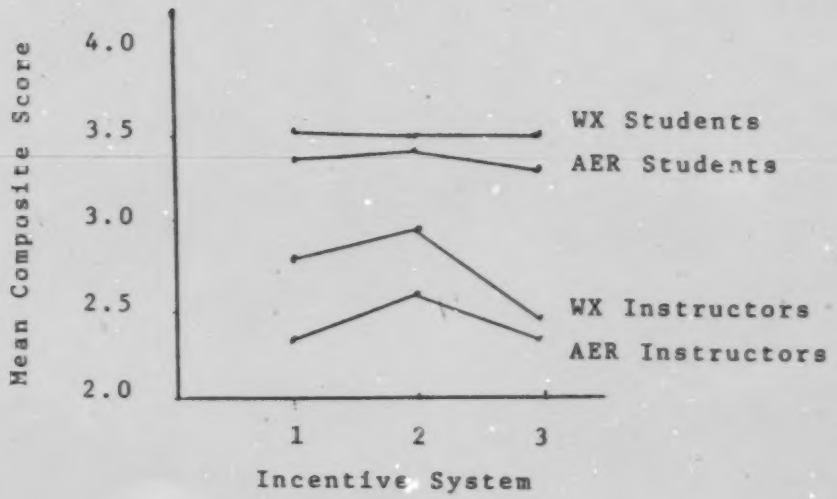
The item by item data for the three administrations are presented in Appendix AA. Separate tables are presented for WX Students, AER Students, WX Instructors, and AER Instructors. An overall composite score was also calculated. To obtain this score, each item of the questionnaire was given a positive, negative or neutral scoring direction. That is for a positively scored item such as #2 ("The incentive system is having a positive effect on student morale") the higher the score, the more positive the attitude. For negative items such as #5 ("The incentive system creates more problems for instructors than it solves") the lower the score the more positive the attitude. Finally, some items were given a neutral scoring direction. That is, responses could not be considered as being related to positive or negative attitudes. For example, item #26 reads "I think the incentive program would work better if it were given more support by the squadron supervisors." Agreeing or disagreeing with this statement could not be considered as being related to positive or negative attitudes toward the system per se.

To obtain an overall composite score, then, the negative items were reverse scored and added to the positive items and a mean of all the items was obtained. The neutral scored items were not included in the composite. Thus, the higher the score on this composite measure, the more positive the attitude.

Figure 20 presents the mean composite scores by incentive system and subject group. Several factors about this figure are significant. As expected, the students felt more positive about the system than did the instructors. However, they were not overwhelmingly positive about it. A mean of 3.0 represents neutrality, and the students mean composite score across all three systems is about 3.5. On the other hand, the instructors were not overwhelmingly negative about the system. Overall all conditions they average slightly above 2.5.

Another interesting finding represented in this figure was that the students did not feel any more or less positive about any of the three systems. We had expected an increase across the three incentive conditions. Even when large financial incentives were offered, students did not display positive attitudes toward the system. The same is by and large true for the instructors. The instructors had a slight preference for system two over system one, but it was small and non-significant. They preferred system three less than system two and while the difference is significant

Figure 20. Mean Composite Score for Treatment Evaluation Questionnaire, by Incentive System and Subject Group.



($p<.05$) it is quite small.

Finally, the figure indicates that for the students, there was no difference in the attitudes of the students in the two courses toward the systems. Both WX and AER students felt almost exactly the same toward the systems. However, the WX instructors were initally more positive towards the systems than the AER instructors, but the difference was slight.

Another index of overall reactions to the systems is the last item on each form which reads "Overall, I think the program is a good one for the Air Force." Means for this item are presented in Figure 21. This figure indicates that when asked about their overall attitude toward the system the students were indeed very positive. The mean response is above 4.0, and since the maximum scale value is 5.0, this mean value is quite high. This somewhat contradicts the data in Figure 20 in that this previous figure showed student attitudes only slightly above neutral. The single overall item is probably a better measure of their general attitude since students were probably reacting to the aspects of the system that affected themselves, while the composite score includes items such as instructor problems with the system which do not directly impinge on the students. Consequently, we would conclude that the students were strongly positive about the system.

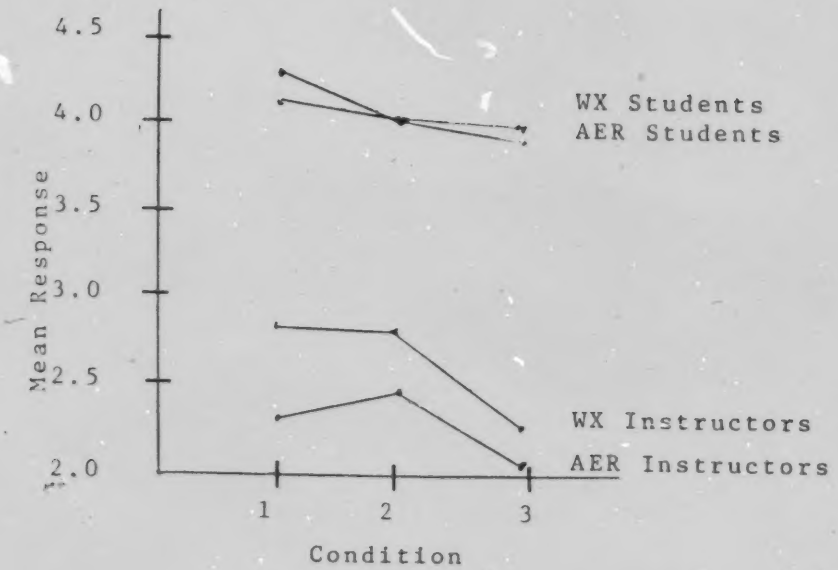
Results from this overall item place the instructors at about the same place as did the composite. That is, they are slightly below neutral.

Finally, this figure indicates that if anything, students preferred the financial incentive system (system three) even less than the other systems, although the differences are very small. Clearly, the instructors preferred the third system least.

Two other individual items related to overall evaluations of the incentive system are worth mentioning. Item #16 (Student form) reads "I would like the incentive system to continue." The mean response across all students and all conditions was 4.25. This was the highest mean of any item, clearly indicating that the students felt positive toward the program. The second item (#22 Student form) reads "The incentive program is just another from of military harassment." The overall mean for the item was 1.92, indicating fairly strong disagreement. This was one of the lowest means.

It is also instructive to examine those individual items with large variabilities. The one item which consistently showed high variability dealt with whether students should be given incentives al all (Item #1). Students generally said yes while instructors generally said no, but across both groups of students and both groups of instructors, responses to this item showed large variability. Clearly, there is a great deal of disagreement about using incentives at all.

Figure 21. Means for "Overall" Item, by Condition and Group



Another item which showed a great deal of variability for the students dealt with equality of opportunity to obtain incentives. Both groups of students showed great variability in responding to this item. The mean response was near neutral, but clearly some people felt the systems were more fair than did others.

Feelings about using negative as well as positive incentives also showed high variability for both students and instructors. As expected students generally said no while instructors generally said yes. However, the students were not as against the idea as one might expect. The mean across all students was 2.49, just slightly under neutral.

A final individual item of significance reads "An incentive system such as this should also give privileges (incentives) to instructors." (Item #11 Student form, #14 Instructor form) the students agreed slightly (mean = 3.32), but across all instructors the mean (2.99) was a neutral response. The Weather instructors were more in favor of it (mean = 3.24) while the Electrical instructors were less (mean = 2.75). Among the instructors this item had a very large variability.

In addition to examining the composite and certain individual items, an attempt was also made to group items into categories. This "intuitive factor analysis" resulted in four groupings. The first group deals with "Philosophy toward Incentives" it includes items dealing with the necessity of giving incentives, extent to which the incentive system is manipulative, extent to which it is degrading, and the degree to which it constitutes harrassment (Student items 1, 14, 21, 22; Instructor item 1). The second group was termed "Observed Effects on Behavior" and includes items dealing with perceived effects on instructor morale, effects on student morale, effects on student motivation, students' enthusiasm for the program, and student effort (Student items 2, 3, 4, 9, and 27; Instructor items 2, 3, 4, and 12). The third group was called "Mechanics of the System" and included items on instructor problems, restrictions on incentives, amount of paper work involved, delay in getting incentives, delay in reporting points, mechanics of the program, value of questionnaires required (Student items 5, 15, 20, 24, and 30; Instructor items 5, 9, and 11). The final group was termed "Quality of the Program" and contained items on the case of earning privileges (incentives), significance of incentives, desire to see the program continue, fairness of the program, desirability of making the program available to other squadrons, and overall evaluation (Student items 7, 8, 16, 23, 25, and 31; Instructor items 7, 8, 10, and 16).

Means for each of these clusters of items were computed (negative items reverse scored) for each condition and each subject group. These data are presented in Figure 22. It is clear from this figure that in all four clusters, for all three conditions the instructors were universally more negative towards the system than were the students. In addition, the Electrical instructors were more negative than the Weather instructors in 10 out of a possible 12 comparisons. This was especially true for the

Philosophy scale. The Weather instructors were slightly below neutral (3.0) while the Electrical instructors were a full scale point below them. The idea of financial incentives (condition 3) seemed distasteful to both. Although still positive, the students were less positive about the philosophy of system three than the other two systems.

As in the case of the composite, the students in the two courses generally agreed with each other on all four scales. As pointed out above, this was not so true of the instructors.

It is interesting to note that on the Observed Effects scale and on the Quality scale there was so much difference between the students and the instructors. Whether this is indicative of more general positive and negative attitudes toward the system or that the two groups were responding to different kinds of information is unknown.

The Mechanics scale offers some encouraging data. The students felt the mechanics of the system were no problem, and the instructors were only slightly negative. These findings would seem to indicate that the mechanics of the program were not seen as being particularly cumbersome.

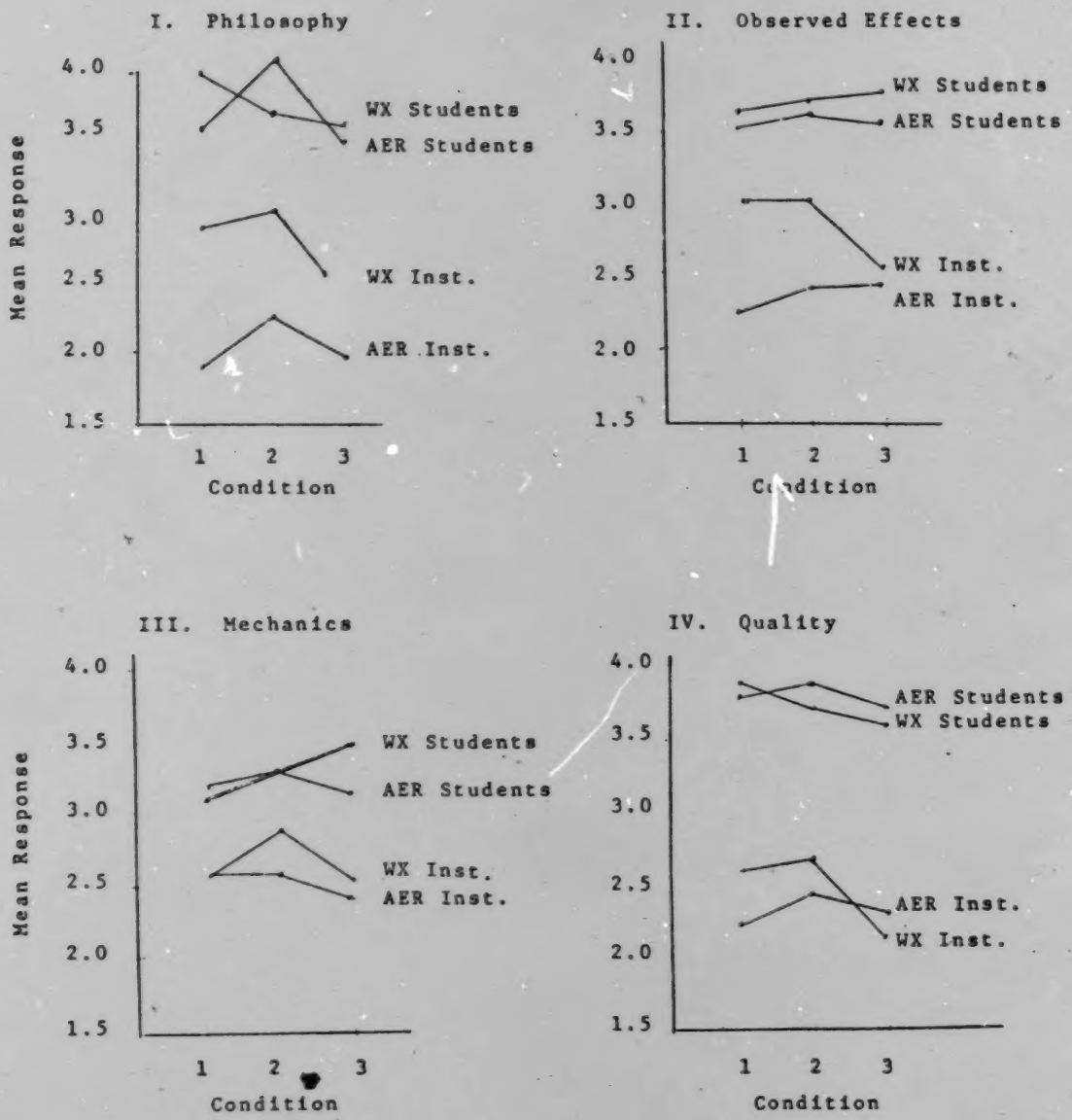
The data in Figure 22 can be reduced even more by getting means for each scale across conditions for a) all students and b) all instructors. These data were presented in Figure 23, along with the composite (all items).

These data reinforce earlier conclusions regarding student vs. instructor differences. However, they point out an additional phenomenon. Inspection of the figure indicates that those scales that the instructors feel relatively negative towards the students feel relatively positive towards, and vice versa. In fact the rank order correlations between student and instructor means is -.60. Clearly, the students and instructors are reacting to the same situation much differently.

In summary, the analyses of the Treatment Evaluation Questionnaires reveal the following findings:

1. Students felt very positive about the system.
2. Instructors felt negative, but only slightly negative.
3. Students invariably felt more positive toward the system than did instructors. This was true for all conditions, for all scales.
4. The students evaluated the three conditions about equally. There was no evidence whatsoever that they preferred the financial incentive system.
5. The instructors evaluated the financial incentive system as slightly below the other two.
6. There were no differences between evaluations by WX students and AER students.

Figure 22. Mean Responses to Four Scales of Treatment Evaluation Questionnaire; by Condition and Subject Group



7. AER instructors were more negative than WX instructors.
8. There was great variability concerning the philosophy of using incentives both on the part of the instructors and the students.
9. The instructors were generally neutral about receiving incentives themselves, but there was a great deal of variability.
10. The mechanics of the system were acceptable.
11. Students and Instructors do not agree on which are the better points of the system and which are th poorer.

G. Perceptions of Equity and Goal Setting

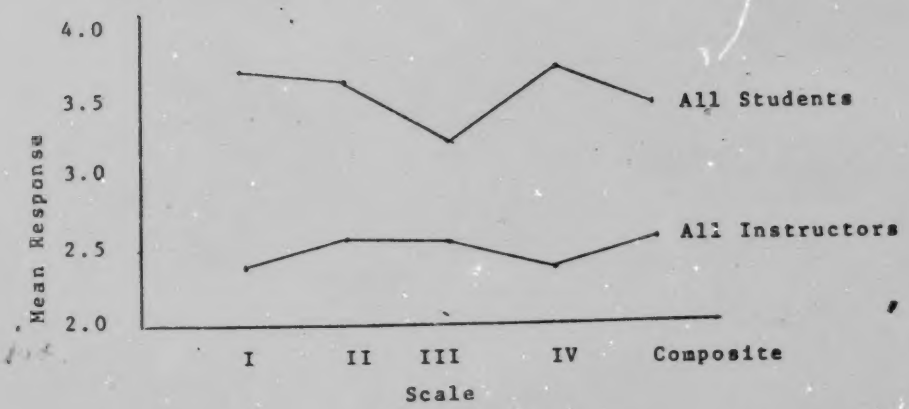
We now turn to a consideration of the effects of the incentive program of feelings of fairness that may or may not arise in an "employer-employee" type relationship (for a discussion of equity theory see Adams, 1965). There are several reasons why feelings of equity might be important in an incentive motivation program such as this: 1) the program represented a marked departure from the usual technical training situation in that the level of rewards change; 2) the program was designed so that different trainees got markedly different rewards; and 3) the different incentive systems gave rewards differently. All of these differences could have an influence on how fair trainees felt they were being treated.

In order to assess feelings of equity a questionnaire was developed (see Appendix U, Part III). It was given in the Hawthorne condition and at about the midpoint of each of the three incentive systems. Of concern here are two items from this instrument. The first (Item #5) reads, "When I consider how much of my energy, talents, and abilities I put into my job as a student in this squadron at Chanute, I would say that the rewards, benefits, and privileges that I get are: "The student responded to the item on a 5 point Likert scale ranging from "far too small" to "far too much." The other item of concern (#6) was identical except that it was phrased in terms of what other students do instead of what I do.

The means and standard deviations of all the equity items are presented in Appendix BB, and inspection of the two items of concern here indicated that the pattern was basically similar for both courses. Consequantly, means across the two courses were calculated and are presented graphically in Figure 24. Both Item #5 (perceived self-equity) and item #6 (perceived other student equity) are presented in this figure.

This figure indicates that the students felt underrewarded during the baseline (Hawthorne) condition and felt that other students were also underrewarded. However, the incentive systems improved their feelings of equity (Hawthorne vs. Trt. 1, $p < .05$). In comparing the three incentive conditions, the trainees experienced a slight (and insignificant) decrease in feelings of equity for the second condition. In fact, since the second system gave trainees "handicaps" on the basis of ability, we had expected perceptions of equity to show an increase from

Figure 23. Means of Four Scales of Treatment Evaluation Qeustionnaire and Composite Across Conditions.



the first incentive condition to the second. However, when financial incentives were offered (system three) feelings of equity rose to their highest point (Trt. 2 vs. 3, $p < .05$). Finally, although there was a very slight tendency for this to happen in the later incentive systems, students by and large did not feel that the other students were being treated better than they themselves were.

The second issue in this section concerns goal setting. It was felt that the incentive system in general, and systems two and three in particular, might increase the tendency of the students to set their own performance goals. As Locke (1966) has demonstrated, such goal setting behavior can affect level of performance.

To assess goal setting, a questionnaire was devised which tapped frequency of goal setting, specificity of goal setting, and importance of goals set. For the WX course only goals related to scores on exams were considered resulting in 7 items; for AER both score and speed goals were tapped resulting in 11 items (see Appendix U, Part I). These questionnaires were given at the same time as the equity questionnaires discussed above.

To obtain an overall index of goal setting, the mean for items 1-6 in WX and the means for items 1-10 in AER were computed, reverse scoring where appropriate. The resulting means are an overall index of the frequency, specificity and importance of goal setting. These means are presented in Figure 25. Means and standard deviations of the individual items are presented in Appendix CC.

The figure indicates that in general the incentive systems resulted in less goal setting than the baseline (Hawthorne) condition. However, the first two incentive systems were about equal to the baseline, and only system three showed a significant ($p < .05$) decrease in goal setting. Clearly, the second two systems did not result in the expected increase in goal setting.

The last item on the goal setting questionnaire asked "In your course, what percentage of the students do you try to beat?" While related to goal setting, this item is probably a better reflection of the degree of inter-student competition. The means for this item are presented in Figure 26. This figure shows that the incentive systems had much different effects on competition in the two courses. In the AER courses, competition generally decreased in the incentive systems. The mean "percentage to beat" in the baseline (Hawthorne) condition was 70 while across all three incentive conditions it was 62. In contrast, while the WX course showed a drop in system two, the mean across the incentive systems was 68, but was only 58 in the baseline. For some reason which is unknown to us, competition increased in WX, but decreased in AER.

In summary, the results from this section indicate:

Figure 24. Mean Equity Responses, by Condition

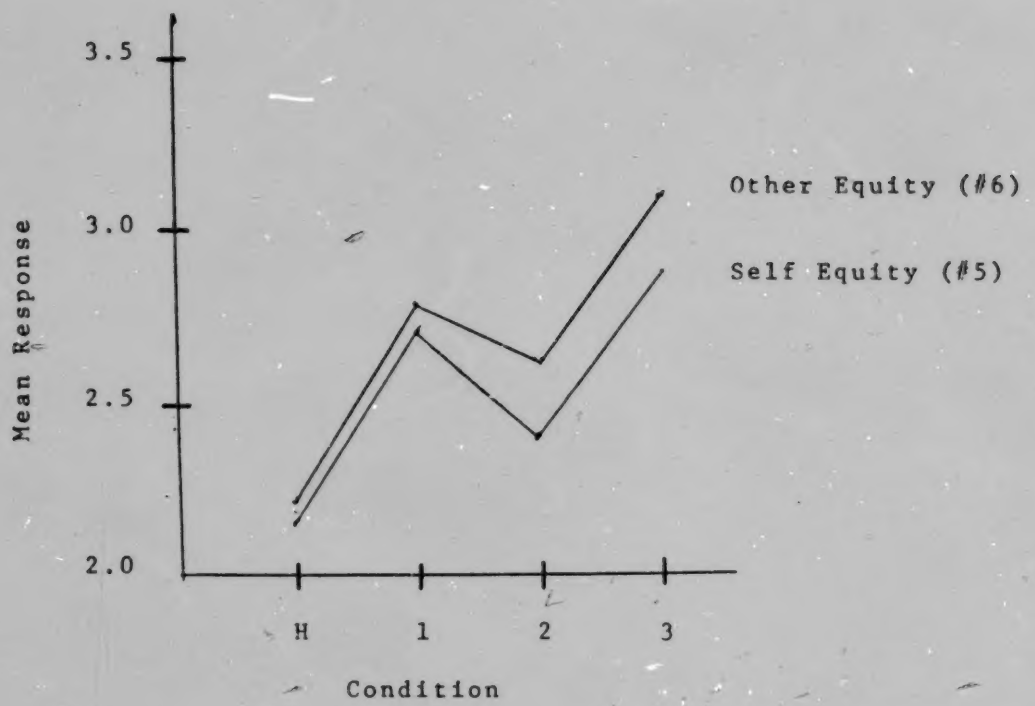


Figure 25. Overall Index of Goal Setting, by Course and Condition

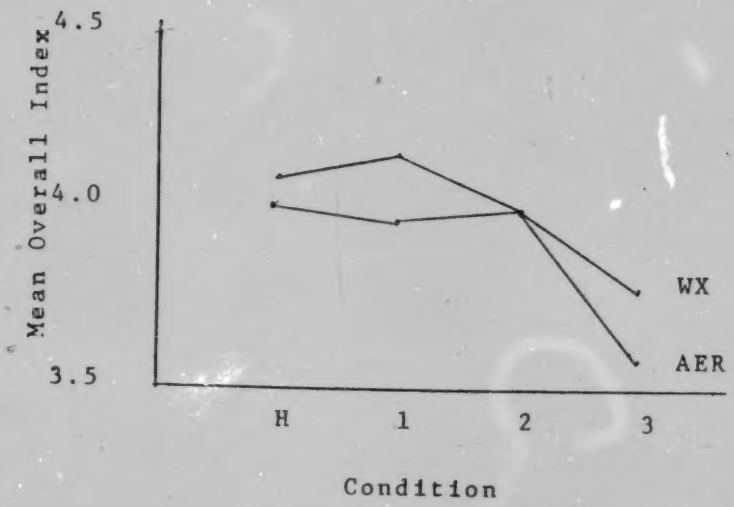
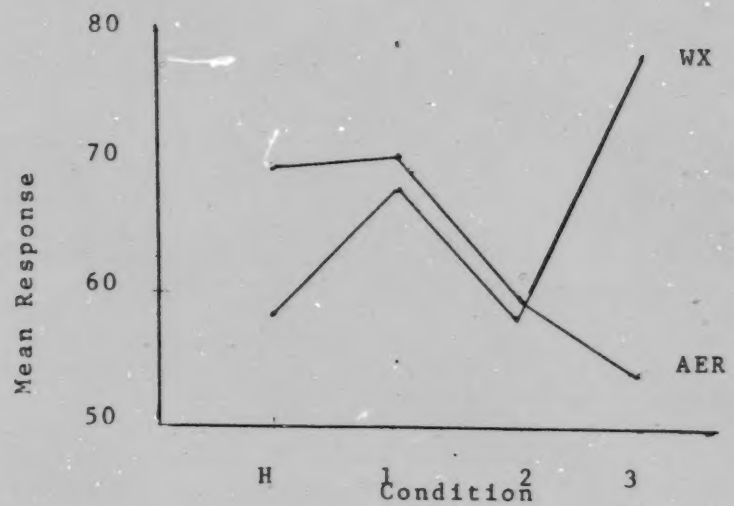


Figure 26. Degree of Competition, by Course and Condition



1. Feelings of equity were higher under the incentive program than in the baseline.
2. Incentive system two was not perceived to be more equitable than system one.
3. Feelings of equity were highest under incentive system three.
4. Students did not feel that other students were being treated less fairly than they themselves were.
5. Goal setting did not increase under the incentive program.
6. Goal setting decreased under the financial incentive condition.
7. The incentive program increased competition for the WX students, but decreased it for the AER students.

H. Individual Differences

In addition to looking at the effects of the incentive systems on the students in the two courses as a group, it is also important to explore the effects of the program on different types of students. The central question is whether the program had a differential impact on different kinds of students. To explore this question, two classes of individual difference variables were chosen for study: ability and sex.

To explore interactions between ability and the effects of the treatments, the students in the two courses were divided into high, middle, and low ability on the basis of the AQE subscores that best predicted performance in that course. ANOVAs were then computed with 3 levels of ability by 5 treatment conditions (Baseline, Hawthorne, Treatment 1, 2, and 3). To the extent that the incentive program had differential effects on students of different abilities, ability x treatment interactions would emerge. Such analyses were computed for mean block performance and meanderived effort in the WX course; dependent variables for the AER course were mean block performance, mean block hours, and mean derived effort for each score and speed. None of the interactions even approched significance. It must be concluded that the incentive program did not have different effects on students of different ability.

The WX course was composed of both male and female trainees. The question to be dealt with here is whether the incentive program had differential effects on males and females. To assess this, a series of 5 x 2 ANOVAs (5 conditions x 2 sexes) were run on the major performance and attitude variables. Evidence for differential effects of the system on males and females would consist of significant interactions in the ANOVAs. Of the 11 performance and attitude analyses computed, not a single sex X condition interaction appeared. Thus, it must be concluded that the incentive program had no differential effect on males and females.

As table 11 indicates, however, there were some sex main effects. Females were lower in AEQ Mechanical and Electrical scores, had more R/I, and had more positive attitudes towards re-enlistment and the Air Force in general. However, the sample size was very large. It is interesting that although females were substantially lower in Mechanical and Electrical

Table 11. Summary of Sex Differences: Ability, Performance, and Attitudes

Variable	$\bar{X}$ Males (N = 1137)	$\bar{X}$ Females (N = 141)	P
Ability			
AQE General	87.10	85.90	.1900
AQE Administrative	79.50	85.10	.6400
AQE Mechanical	76.50	52.00	.0000
AQE Electrical	82.10	70.30	.0000
Performance			
Mean Block Performance	89.00	88.50	.6200
Mean R I	2.00	3.20	.0500
Mean Derived Effort	.82	1.06	.6500
Self Rated Effort	5.80	5.70	.5000
Instructor Rated Effort	6.00	6.10	.8400
Mean Block Probation	.10	.14	.1900
Attitudes			
Reinlistment	3.50	5.10	.0009
Job Satisfaction	3.10	3.40	.0600
Course Critique	3.30	3.40	.2100
Overall Air Force	2.70	3.10	.0007
Social Desirability	2.80	2.90	.2000

Figure 27. Frequency of Incentive Purchase: WX

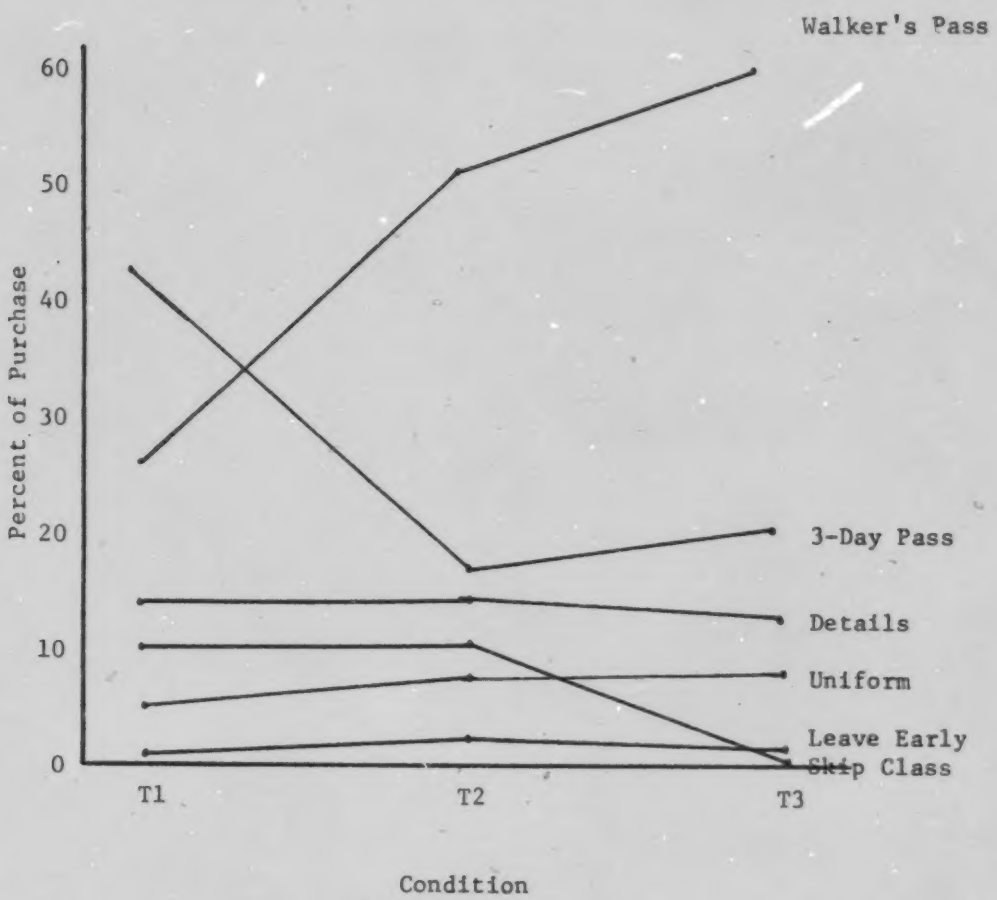


Figure 28. Frequency of Incentive Purchase: AER

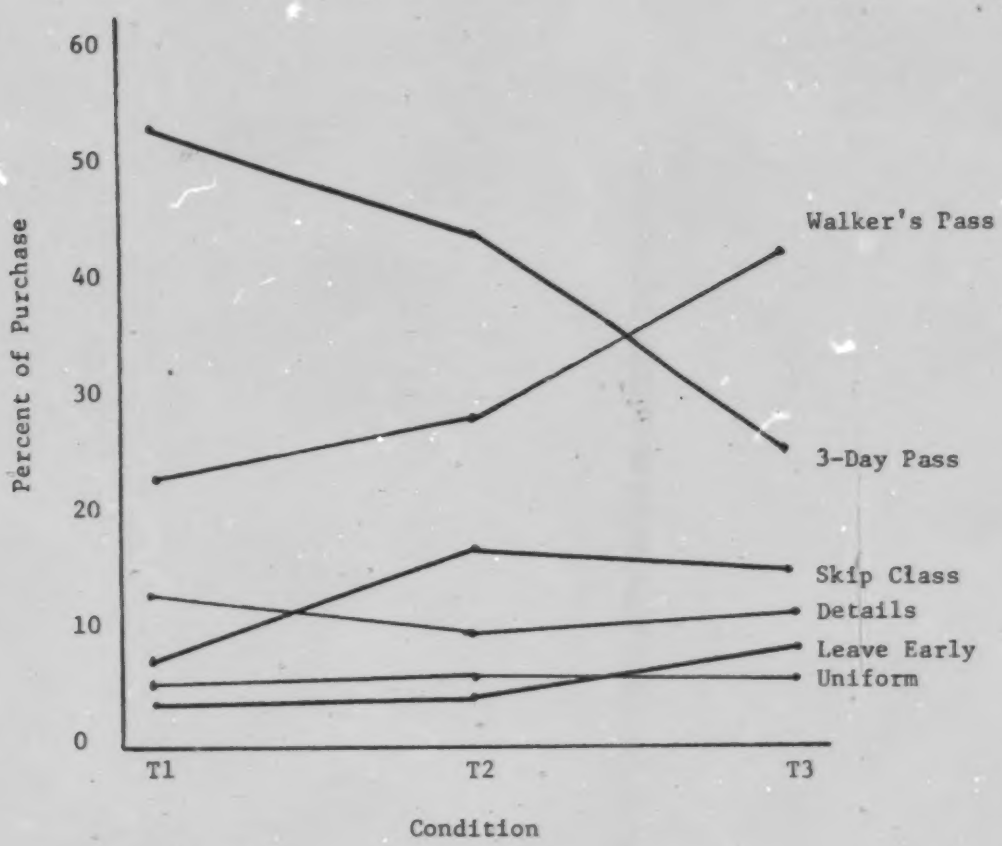


Table 12: Percent of Purchase of Financial Incentives

Incentive	WX	AER
BX Certificates	79.7	86.9
Sears Gift Certificates	17.0	6.3
Airmen's Club Chits	1.1	2.4
U.S. Savings Bonds	2.2	4.4
Bus Tickets	0	.1

ability than males their performance was just as good.

I. Frequency of Incentive Purchase

The nature of the incentive program allowed students to choose their own incentives from the list available. Those incentives that could be "purchased" included Walker's Passes, choice of uniform, being relieved of squadron details, leaving class early, being excused from class on day, and a 3-day pass. Recall that letters of commendation to parents and new commanding officers were sent automatically if the student reached the criterion. In addition, the third incentive system also included the financially based incentives of BX certificates, Sears gift certificates, chits at the Airmen's Club, U.S. Savings Bonds, and bus tickets.

Records were kept of the frequency of purchase of the various incentives, by condition. These data for the non-financial incentive conditions are presented in Figure 27 for WX and Figure 28 of AER. These figures indicate that the most popular incentives for both courses were Walker's Passes and 3-day passes. One interesting finding is the reversal in popularity of 3-day passes and Walker's Passes. During the first incentive system 3-day passes were more popular, but by the third system they had decreased in popularity while Walker's Passes increased strongly. We shall have more to say about this in the discussion section. Other than this shift, preference was nearly even incentive conditions.

Data on the frequency of financial incentives are presented in Table 12. Far and away the most popular incentive was BX Certificates. This is not too surprising since the BX complex offered such a variety of services and products.

Discussion

In the previous section, we have presented the results of analyses of the data. Little attempt was made to actually interpret these analyses in light of the major question the research attempted to answer. It is to this task we now turn.

The central question of this research was whether it is cost-effective for the Air Force to institute some form of incentive management or incentive motivation techniques in Air Force technical training. To deal with this question, we shall first summarize the positive and negative evidence for: (a) performance, and (b) attitudes.

Positive Results: Performance

1. Time of course completion in AER decreased under incentive sytem 3.
2. There was a general decrease in remedial instruction for both courses during the incentive systems.
3. There was a general decrease in probations for WX during the incentive systems.

4. Counseling sessions decreased in WX.
5. WX students exhibited slightly higher effort during the incentive conditions.

Negative Results: Performance

1. The incentive systems did not result in improved exam scores in WX.
2. Exam scores were essentially unchanged in AER.
3. There was a slight increase in time to complete the AER course in incentive systems 1 and 2.
4. No change in block failures for AER.
5. No change in counseling sessions for AER.
6. No change in effort for AER.

Positive Results: Attitudes

1. Attitudes towards re-enlistment increased in both courses during the incentive system.
2. Overall Air Force attitudes increased slightly in WX.
3. Trainees liked the incentive systems.
4. Instructors did not strongly dislike the systems.
5. The mechanics of the systems were acceptable to both trainees and instructors.

Negative Results: Attitudes

1. No change in overall Air Force attitudes for AER.
2. No change in the course evaluation for either course.
3. No change in job satisfaction for either course.

Examination for this summary of the performance and attitude findings indicates that in terms of the primary performance variables of exam score and speed of completion, the first two incentive systems simply were not effective. System 3 was effective only in the AER course for speed of completion, resulting in an 8 percent time savings. This time savings was statistically significant ($p < .01$) but the question of practical significance should be addressed.

While 8 percent may not seem particularly impressive, the financial benefits in this case clearly exceeded the costs. For both courses, financial incentives cost, on the average, about $1,500 per week. The administrative cost was not greater than $300 per week for both supplies and the one additional man-week required for record keeping. It has been estimated [1] that each training day costs the Air Force between $25 and $150 per student. The lower estimate is composed of merely the

[1] ATC/Management Analysis Branch, personal communication

pay, allowances, support costs and administrative overhead associated with trainees in a holding status, while the higher figure reflects additional costs associated directly with training--instructors, courseware, equipment, etc. These vary depending on the sophistication of the training equipment, student/instructor ratio, course length, etc.

In the AER course, a very conservative estimate of 1 day's training cost is $40. Thus, a 6-day (8percent) savings translates to $240 per student graduated. Since graduation rate in the AER course was about 15 students per week, the total savings amounted to $3,600 per week for a "profit" of $1,800 weekly. Applying incentives only to AER would further reduce the cost of the incentive system $750 per week, increasing weekly "profit" to $2,550. Admittedly, this profit is general in nature, roughly estimated, and probably reflects certain fixed costs which could not be cut. To locate particular savings, a detailed economic analysis of the AER course would need to be made; this was beyond the scope of the present study. However, it seems apparent that one could either increase the student flow to take advantage of slack capacity or that with flow constants some decrease in instructor manning could be tolerated.

The incentive systems were moderately effective for the secondary performance measures especially in the WX course. But, decreased remedial instruction time, decreased probations, etc., were not always associated with greater exam performance or speed of course completion. The relevance of secondary performance to a criterion of cost-effectiveness is, therefore, questionable. On the other hand, to the extent that the incentive systems brought about decreases in remedial instruction, probations, and counseling sessions, the training ran more smoothly. When course personnel experience less difficulty in processing students, this is an obvious, though not easily quantifiable, benefit.

The incentive program did show some positive effects on attitudes. Once again, however, increases in positive attitudes were not always accompanied by strong increases in performance. It is undoubtedly of some benefit to have trainees entering the field with more positive attitudes, but permanent attitudes toward the Air Force and re-enlistment will probably be much more strongly influenced by field, "real-life" experiences than by a relatively brief experience in tech school.

Overall, the conclusion of this research is that one of the incentive systems employed here, while its effects were not dramatic, was cost-effective for Air Force technical training.

The next obvious question is under what conditions incentive motivation techniques would be more effective. The present research indicates that, while they were expensive to produce, increases in performance were realized in incentive system 3 for the AER course. One reason the incentives worked in system 3 but not in the first two systems was clearly the strength of the more powerful incentives used in system

3. This does not, however, explain why system 3 did not work in the WX course. The most reasonable explanation is that the WX students were already high performers. They averaged over 88 percent on course exams before they system started. It is quite likely that a ceiling effect was operating and it was extremely difficult for students to do any better. The AER students, in contrast, had a great deal of room to increase. Their performance was not that high, and increasing their speed of going through the course may have been relatively easy.

Thus, our results suggest that positive performance effects can result when: (a) incentives are powerful, and (b) it is not difficult to increase performance. Let us consider this issue in more detail.

The generally weak effects produced by the present research are clearly in conflict with the body of strong positive effects reviewed in the beginning of the report. The question that presents itself is why we did not observe more powerful effects in the experimental incentive systems? At the conclusion of this literature review, we discussed the conditions under which an incentive system should work. We shall discuss each of these in turn.

1a. Incentives must be carefully sought out and identified as highly attractive. This condition was met by the research here. Every attempt was made to isolate incentives and determine their attractiveness.

1b. Since there are individual differences in the attractiveness of different incentives, allowing people in the system to choose their own incentive from a variety of incentives should increase the attractiveness of the incentive package. This condition was met.

1c. The greater the proportion of all positive outcomes in the person's environment that are subsumed under the incentive system, the more powerful it will be. The incentive system did not satisfy this condition. The rewards controlled by the system were relatively weak compared to the overall rewards for the trainee. The third system was better than the first two, but overall, the incentives were not strong.

2a. The incentives must be applied consistently by the system. This condition was met.

2b. The person in the system must perceive that the incentives are applied consistently. At the start of the system, a problem with this condition arose in that two students were denied requests for 3-day passes by a Course Supervisor. While the reasons for the denials were reasonable, the rumor spread through the students that incentives might not be delivered even if earned. This rumor was stopped and clearer guidelines for incentive delivery were given to both instructors and students. Apparently, no problems arose after this. Consequently, this condition was met, at least after the start of the program.

2c. The rules for attaining the incentives must be completely clear to those administering the system and those actually in the system. Except as noted in 2b above, this condition was met.

3a. It must be possible for all people in the incentive system to actually do the behaviors required. This condition was probably met for AER, but not met for WX. As discussed above, WX students had very little room to improve their performance.

3b. The people in the system must perceive that it is possible to do the behaviors required. AER yes, WX no.

3c. The people in the system must perceive that variations in controllable aspects of their behavior will result in variations in their level of performance and, ultimately, their rewards. AER yes, WX no.

4. The behaviors required must be clearly specified as well as be readily measured. This condition was met.

5. Once the system is operational, great caution should be exercised in decreasing the magnitude of the incentive for a given behavior. The point system was changed at the beginning of program, but students seemed to accept the rationale for the change; and no student to our knowledge ever mentioned the possibility that high performance would result in a lowering of points awarded.

6. The more frequent the reinforcement (i.e., the smaller the unit of performance to be reinforced) the stronger the system. Due to the structure of the courses, reinforcement occurred too infrequently for both courses. WX averaged 1.3 reinforced exams per week, AER averaged one reinforced exam per 2.5 weeks.

7. The behaviors to be reinforced by the system should also be reinforced by any significant others in the person's environment. This condition was not met. The instructors in the squadron area (not the course instructors) did not strongly encourage high performance in the courses and generally downgraded the incentive system. Also, the norm of the students seemed to be to avoid extra study and extra effort in the courses.

The preceding discussion suggests several reasons both why the present system did not produce strong effects and how an incentive system could be improved for use in Air Force technical training. First, the incentives should be stronger. They must also be stronger at lower cost. Every attempt should be made to use incentives such as choice of assignment, promotion, and extra leave. In addition, negative incentives should be instituted for poor performance such as mandatory study sessions on weekends, and mileage restrictions.

Second, incentive systems should only be used in courses where be-

cause of the nature of the material, exams, or students, performance can be reasonably expected to increase. Specifically, this research has confirmed the notion that courses should be selected for implementation of incentive techniques with forethought given to whether scores or speed are already at a maximum. Moreover, it appears from this research that self-paced courses are more appropriate for incentive techniques. Not only are time savings more quantifiable than quality increases, but encountering ceiling effects seems lees probable.

Third, the frequency of reinforcement should be increased. Points could be given on the basis of tests or exercises done once a day or even more frequently.

Finally, there must be more social support for high performance. This would be from other students, instructors, and even, for example student's wives. Rewards for instructors and group incentives should be explored.

Other Issues

Several other issues were suggested by this research which were not directly related to the central question, but which are relevant to the issue of motivation in technical training.

The first issue deals with the results of the Hawthorne condition. In a large proportion of the performance analyses, the Hawthorne condition resulted in perfromance as good as the incentive system. For the AER course, there was evidence that this group was, by chance, an exceptional group; but there is no such evidence for the WX students.

The findings suggest at least the possibility that special treatment, and listening to the likes and dislikes of trainees, could have a positive effect on performance. The findings here are only suggestive, but further research in this area could be fruitful.

A second issue arose from a small bit of data collected around the middle of the incentive system. A group of about 30 students were asked to rate the attractiveness of the incentives that were being used. Note that these students had had experience "consuming" these incentives. Analysis of these data indicated that the attractiveness of the incentives had changed drastically after students had experienced them. During the first phase of the project, before students had had experience with the incentives, a 3-day pass was rated 5.64 on a Likert attractiveness scale (maximum = 9) while a Walker's Pass was rated 4.28. After they had gained experience, the Walker's Pass was rated substantially higher than the 3-day pass. The exact data are unavailable, but clearly showed a reversal in the attractiveness of these two incentives. These fragmentary data are supported by the incentive purchase data.

Two important implications emerge from this finding. First, the

attractiveness of incentives can change markedly after experience. Second, incentives which increase the autonomy of trainees could be extremely powerful. Both of these implications are worthy of further research.

The third issue to be considered deals with the derived effort concept. The data indicate that rewarding students on the basis of derived effort was not more effective than rewarding raw performance. Unfortunately, the data on the checks on the manipulations indicate that trainees did not perceive that effort was being rewarded in the second and third systems. Therefore, such a system needs to be refined before it can be said to have been given a fair test.

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APPENDIX A

Raw Incentive Material

APPENDIX A

going home
swimming at base
driving car
shows at Chanute
liked last part of course - because work is more practical
fast track - if they do well they can finish course earlier
"Uncle Sam" doesn't like extra work done - reason they feel they don't get base preference after leaving
not enough money on weekends, especially for married couples
straggling (walking rather than marching)
chow hall area - out of milk
out of glasses
out of napkins
everything soaked in salt
meat, potatoes, etc., are raw
blocks 1, 2, 3 are boring
students may get pulled out of fast track due to certain Air Force contingencies
Air Force is only branch that requires short hair
some of the trainees mentioned they enlisted in the Air Force to get an education (comment)
one individual stated he would consider becoming a "lifer" only if he could enter OTS or had a chance of getting a pay raise (comment)
feel they will learn quite a bit more now than in high school
enjoy the privilege of "getting drunk" at night which they couldn't do at Lackland
believe they will get a good job when they get out because of what they learn in this course
dislike getting out of bed to do duties
feel instructors are friendly and informal
interesting course material
feel they are regarded as equals by the "higher ups"
breaks during class time
dislike TI notes on Friday
short hair - "if you have short hair, stay out of Rantoul"
noise at night in the squadron
Air Force needs come before those of the individual
can't make plans while at base because they don't know where they will be stationed
state that they would work harder if they could be stationed closer to home
also would work for extra five-day passes (leaves)
longer leave for finishing earlier
get out of squadron details (e.g. dorm guard)
promotion (2nd stripe) at completion of course
honor designation (sent to parents, new C. O.)
a) whole course
b) end of block
post performance on bulletin board in classroom area and squadron area
extra duty on weekends
extra duty during week (cut grass, shovel snow, etc.)
three-day pass at end of each block
put class record in permanent file
get out of morning chow
competition between squadrons (group incentive)
bust in rank for not completing course
restrict to base on weekend

restrict to base during week
giving and removing ropes (honorary supervisory position)
do remedial instruction in squadron area rather than have students come back to school area
special public recognition in front of students
use best students as helpers for other students during normal class time or other times
restrict mileage on weekends
ride bus to school
wear class A uniform to class
make transportation available to Champaign, Indianapolis, Chicago, and St. Louis
free pass to swimming pool
free pass to bowling alley
free theater tickets (don't have to wait in line)
ride in an airplane
more emphasis on course being for their own benefit
give choice of course
better housing
get off base earlier
some way to get home
right to have a say about things
more respect for better performance
more recreational things to do
more free time
do away with some of the red tape (e.g., getting a pass)
change in uniforms
different ways of teaching course
less time in service for outstanding work
times of shifts
dorms and housing (off base)
bussing service (to towns)
housing for married students
quiet place to study
guaranteed either staying in states or going overseas
women in club
self-advancement in school
quiet in the rooms
chance for college education
less value on marching and other military aspects and more on scholastic ability
get school and squadron to work together
make ropes a more responsible position
car on base
orders to go home after training
preference for a particular shift
not being disturbed in the morning
free or lower priced haircuts
look forward to leaving base
get away before it gets cold
pay raise
keep occupied
get to next base - find out about job
make friends
lack of women
not enough to do
see planes fly

go to airman's club
USO club
Chevron club
buying things cheaper
instructors boring
lack of feedback on tests
something to do in town
doing own laundry
sports teams (all participate)
drinking beer
phone calls
not go to any school if flunk
nothing to do during free time
possibility of some sort of cultural activities available (e.g. availability of painting lessons, carpentry, etc.)
being able to participate in some of the minor decisions concerning their life on the base
having a phone in their rooms
having beer in the dorms
jobs outside the base for extra money, or even extra jobs on the base that could give them more money
having classes or workshops in fields of interest for use when they get out of the service
having "gripe sessions"
giving certificates or awards to those Air Forcers who have excellent attendance records
awarding scholarships to those who do well and want to go to college when they get out of the service
live off base
poor civilian help in chow hall
drivers training
get money stolen
women
issue gym shoes
clean up at tech school
6:30 a.m. detail
get a loan
on the job experience
they should slack down on the uniforms
they should let us be more responsible for our own time free
they should slack down on polishing our shoes
they should tell the TI to slack down on being so strict in some areas
they should at least warn us before they punish us for the wrong we do
they should let us go as fast as we wish to in class instead of waiting for the other guys
they should let us go wherever we want to just as long as we're back for school
I feel we should at least have our own time to study in the morning as well as at night instead of doing details
I feel that they are giving us too much detail to do "and are supposed to have janitor at work"
I feel they should let the men who live off base go home in the morning instead of coming here just for TI notes
I feel we should have a better way to communicate to the officers here on base
I feel we should have less breaks at school than more

I feel if they would let the airmen get a haircut the way the regulation says the TI should not give them any shit
I feel if we had more time to get up in the morning we would have a better chance to study
I feel if they would let us prove ourselves as men, we would react in a better way as men should
I feel that we shouldn't be forced to go to driver training if we don't even drive
I feel that if a person were going overseas he should be able to take his wife with him right then
I feel that we should not be moved from one place to another while we're on a bus for a long time
I feel that there should be no racist people here because I'm tired of going to school with people with a negative attitude
I feel if you had no money to get your uniform cleaned, you shouldn't be punished
I feel that we should be here for only two reasons and those are knowing we have our obligation to fulfill and school
I feel we should be responsible for others mistakes
I feel that if the TI has something against a person, he should express himself
I feel that we need a little more time to prepare for an inspection on base
I feel that our barracks should be kept up by the janitors who work there
I feel we have no need to support a TI who does not care about his students
pressed uniforms
wasted time in school
excess details
open locker inspections
apply "regs" to all, not just some
formal barracks inspections
military KP - wanted
better hours for any type of "store"
don't like outside-of-squadron details
lifers for MTI's - get younger TI's
zippers in boots - should be optional
MTI's should practice what they preach
being forced to call an NCO "Sir"
more choice in who your roommates are
mandatory dust cover beds
highly polished floors
lengthen courses and shorten hours per week
make everyone equals in school - disregard rank
separate rations for bachelor airmen
expenditure of military funds - should be checked closer
food in the barracks
what's good for WAF's is good for airmen
72 hour pass
a better credit union
help on promotions
a car for a week
a gift certificate at a clothing store
1 or 2 weeks of not marching to school
no 7:30 formation for 1 or 2 weeks
take a day off from school
maid service
attendance certificate at the end of each month
rewards on dress
more recognition in the classroom
a progress report should be sent home to the family

rewards for own supervision after the instructor has briefed a man on his career field
rewards for the completion of man's career field, more than just a certificate
7:30 roll call
everyday inspection
air conditioned classrooms
a little more "resibly" of yourself and not a TI telling you
better equipment to work with at school
drinks or food that you buy over at school could be a little cheaper
not having to march to or from school while raining
more rewards by doing the best job you can while in school
more diversified foods - organic, natural, etc.
clearer understanding and more help in visualizing progression through the ranks, education, etc., i.e., how to move up the ladder to become an officer
end to barracks life
more privacy
more avenues for easier development
more of a say as to what career one chooses or winds up with
less scheduling, in school, lunch, etc.
more free time at school to pursue areas of interest pertaining to an individual's career development
more unity among the ranks in areas of personnel, career, etc.
co-ed housing
more rap sessions like this, and with people who are willing to listen and have the authority to change things
better facilities at Aero Club, i.e. commercial courses, instruments, etc.
less red tape
take many, not all, but many of the guns away from security police - I realize they're needed, but firearms are dangerous
more representation for the NCO lifers and airmen
more time to study
more convenient hours for the BX, bank, etc.
better break areas at school
more chance to bring up "beefs" to responsible people in charge
more of a chance to join clubs that are not open too much to students
more things to do on weekends
more time to eat
better service in the chow hall
less strict inspections of rooms
less strict inspections of lockers
better recreational equipment for the game room
more action taken on good suggestions
more chances to make suggestions (ex. - boxes)
more service club facilities
more competent MTI's who look at all sides of the picture and not just their own extremes of enforcing regulations
the system of having group punishment for one person's mistake
no more threats of details if you do something that is within regs, but disagrees with your immediate chain of command (ex. - complain about policies of a squadron)
more convenient meal hours for people who are on an odd shift
fairness in the choosing of people to do details after school, not one guy working like hell and the others not having to do anything at all
less of small useless formations that don't do anything but mess up your weekend
less of moving from room to room every other week or so

less harrassment
less stringent enforcement of marching on parade all the time (meaning - not so strict on the present standards of drill)
drive to school
more freedom
better classroom procedures
better base facilities
dress codes
more recognition
lack of military standards
more communication with commander
open door policy with TI's, first sgt., etc.
cleaner chow halls
a place for married students to bring wives on base, clubs, etc.
no weekend details
more student representatives on boards dealing with students
wear different uniforms to school (depending on type of school)
shorter schools (teach what is needed and review more at next base)
permanent station orders (4 years at one base)
better qualified instructors
married airmen living off base should be able to buy beer and take it home
pay bonds for top 10% of school grades
more rap session with supervisors
no commanders call
more time to talk to people who can do something for you (be able to talk to them "off the cuff")
no MTI's
positive action taken on complaints if possible
no saluting officers unless reporting to them
airmen can drink beer on base when they are off duty. Implement on a trial basis the allowing of students to similarly indulge themselves with marijuana. Then, take away both beer and grass privileges from those who are not performing adequately. I realize the second part of this idea could not be effectively enforced, but it is possible that implementing the first part could result in improved morale, thus improved performance (not to mention increased enlistments). All other drugs would definitely remain taboo, and existing regulations regarding intoxication while on duty would remain in effect and would be enforced to the maximum of the law.
allow superior achievers to "sleep in" in the morning instead of having to get up four hours before school every day for roll call and details.
longer rain coat
zipper
no bed check
girls in the day room
new MTI
tap on shoes so heels don't run down
black barbers
wine at the airmen's club
better tools in school for better jobs
later shifts
club stay open longer on weekends
no hard work for AFI
better cleaners
better BX
military hops on weekends

do what you want to do with your room
if you go home on a weekend pass and can't get back, call in and let them know and you won't be AWOL!
better uniform for the winter and summer
wear what kind of underwear you want
no fighting on weekends
faster speed limit on base
closer hospital
be able to get in the NCO club as an airman first class
bus to take the airmen and NCO's around the base
if married, you and your wife can life on base
no changing squadrons once you're there
wear white socks
wear sunglasses in formation
better swimming pool (too slippery on bottom)
air conditioning in the dorm
girls in the rooms
wear 1505 to school in the summertime
wear 1505 with your own clothes
wear jump boots with your own clothes
better lockers in rooms
better shower in squadron
better ropes
better chairs in the TV lounge
more freedom on base
taxis on base run longer
special awards for outstanding students
a better liberal dress code
maybe a bonus for a certain grade average in school
more opportunity for underaverage students
more human relations sessions
better living conditions for married and single airmen
more instructors and equipment for underaverage students
more efficient postal and processing service
sponsorship into drag racing for outstanding students
chances to travel to other bases for sports competition
better school hours
more responsibility toward students
maybe small scholarships for further education to outstanding students
early outs to students who want to go back to college
newer and more efficient regulations for modern times
more chances to voice opinions (times are changing you know)
shorter enlistments (like 2 years and 6 months or 3 years)
special jobs for people to work off a punishment
more respect for a lower grade airman from his superiors
more opportunities for civilian jobs during enlistment and after discharge
a better disciplinary system
recognition of one's rights as a citizen of the U.S.
a better self-paced course for higher than average students
better TI's for student squadrons (this is not Lackland)
a better travel pay system for students
a better transportation system for airmen
people who are not prejudiced against airmen who are underaverage because of personal problems
a better freedom of speech system for airmen
more liberal freedom in the classrooms at school

MENTIONED SPECIFICALLY BY WAF

Self pace instruction in course
Structure class better
Grooming classes
Permission to go on to other things in class if you finish your work
Lack of practical application in course - maybe a field trip
Choice of assignment - on this about 50% would like it and the other 50% were against it
Permission to wear their hair down if they want to instead of wearing it up on top of their head
Some place to dance other than the Chevron - Chevron has a stripper and all of the fights usually start at this place
Permission to wear, or for the military to change regulations so that their uniform consists of, coulottes or more feminine pants
B Shift - when they get out of school everything is closed. They would like stores kept open.
Organized sports for girls
A gymnasium for the girls so they wouldn't have to go to the guy's gym
More sewing machines
A kitchen for the WAF so they can cook some of their own meals or make cookies
Rent bicycles (one group pointed out though that they could be rented already)
A day room in the dorm - a place for them to lounge in their pajamas
Some sort of living room in the dorm
Take course at University of Illinois
Buses to go places off the Base
Recreational marching band for girls
Permission to paint their rooms and decorate them as they wish

APPENDIX B

Potentially Usable Incentives

APPENDIX B

Honor designation (sent to parents, new commanding officer)

Post performance on bulletin board in classroom area and squadron area

Extra duty on weekends

Extra study period on weekends

Extra duty during week (cut grass, shovel snow)

Extra study time in the evening

Three day pass at end of each block or part of block

Put class record in permanent file

Choice of base

Getting out of morning chow

Competition between squadrons (group incentive)

Bust in rank for not completing course

Giving and removing ropes

Do remedial instruction in squadron area rather than have students come back to school area

Special public recognition in front of students

Special insignia for high effort

Receiving one day additional leave at end of course for each 5 days finished early.

Use best students as helpers for other students during normal class time or other times (e.g., people with special insignia help instead of squadron duty)

Restrict mileage on weekends

Ride bus to school

Straggler's pass

Wear class A uniform to class

Make transportation available to Champaign, Indianapolis, Chicago and St. Louis

Free pass to swimming pool

Free pass to bowling alley

Free theater tickets (don't have to wait in line)

Ride in airplane

Taking a bus to school

Wearing any uniform you desire to school (for example, 1505's or class A)

Being permitted to skip "TI notes" (a mandatory formation for making announcements)

Being allowed to have a weekend visitor (male or female) stay at the guest house

Receiving quarters allowance in order to live off base

Getting free games (worth $3) at the Bowling Alley

Having a weekend mileage restriction of 50 miles

Getting a free night at the movie - includes popcorn and drink

Being put on separate rations so you would not have to eat in the dining hall

Failing to complete any technical school course

Getting a free night at the Chevron Club ($3 in merchandise)

Having a letter of commendation sent to your parents

Pulling KP

Going on a field trip to see your specialty at work at another Air Force base

Receiving an orientation ride in a fighter type aircraft (TDY trip involved)

Longer leave for finishing earlier

Get out of Squadron details (e.g., dorm guard; however, dorm guard may no longer be used with new dorms)

Cut grass, shovel snow

Get out of TI notes for 1-5 days

Extra day off - chosen by student

Promotion (2nd stripe) at completion of course, or at least not given 2nd stripe when in course for 22 weeks

Choice of A or B shift

Straggler's Pass

Free meal at one of the better base facilities

Trip to see their specialty in action

Sleeping in

Have beer in room

Discount on beer or free beer

Extra leave or allowed to spend leave

Free or discounted haircuts

Go extra week - 2 weeks without a haircut

Pay raise (pro pay)

Special consideration for entering another Air Force specialty

Separate housing allowance

Leave one hour earlier from class

Leave class when desired

Choice of staying in states or going overseas (regions of the U. S.)

Keep car on base

Free or discounted laundry service

Free or reduced tickets to local (50 miles) events (e.g. football games, drag races, horse races, etc.)

Sports competition between courses for tokens

NOT marching back to barracks after chow

Proficiency pass driver's training

Permission to get (or help finding) part-time job

Work through breaks if desired

Get out of locker inspections

Choice of roommate

Food in barracks

Gift certificate

Case of beer

Get out of CQ runner

Take meals when they want to

Permanent station orders (4 years on base)

Drive own car to and from school

Free pictures taken

No KP

Credit at base stores

Base owned bicycle or motorcycles

Control of TV channel selection

Discount or free pizzas to be brought to barracks

Discount or free meal at local civilian restaurant

Free or discount green fees

One day off (Friday) for whole class (one instructor) if all are above target score

Free or discounted tickets to movies in Rantoul and/or Champagne

Special classes or workshops talking about: (e.g. what it's like in the field)

Receiving $50 per month extra pay

Being considered for promotion (1,2,3,4) weeks earlier than usual

Being demoted

Receiving 15 days additional leave at the completion of the course

Choosing your assignment from those available at the time you graduate

Using the base taxi services to go anywhere on the base (except to and from school)

APPENDIX C

Incentive Attractiveness Data

for

Males in Target Courses

(Weather Observer and Aircraft Electrical Repairmen)

Note: The item numbers refer to the incentive listed in Table # 1 in the body of the report.

APPENDIX C

Males In Target Courses (N=235)

ITEM	LIKERT SCALE MEAN	S.D.	MONEY SCALE MEAN	S.D.	MEAN STANDARD ATTRACTIVENESS
1	2.35	3.01	3.49	13.66	-.50
2	2.91	3.19	6.47	17.68	-.30
3	3.48	2.84	3.32	12.71	-.25
4	3.35	3.07	2.69	11.51	-.29
5	3.60	2.87	2.77	12.23	-.24
6	4.69	3.09	9.67	21.67	.16
7	7.01	2.04	63.28	40.24	2.26
8	7.01	2.01	62.05	41.71	2.22
9	3.50	3.39	14.95	28.55	.09
10	3.74	3.51	15.39	30.09	.16
11	1.97	3.13	5.69	17.18	-.52
12	3.82	3.09	11.40	22.23	.06
13	2.65	3.23	7.84	19.04	-.31
14	6.76	2.36	46.70	42.41	1.73
15	1.90	3.50	5.17	25.49	.12
16	3.92	3.34	14.60	29.06	.17
17	3.00	3.57	7.58	23.76	-.06
18	3.63	3.87	7.65	24.01	-.09
19	5.39	2.98	38.72	40.59	1.20
20	4.86	3.05	26.11	35.47	.72
21	1.48	2.60	4.99	16.01	-.65
22	1.33	2.48	3.81	13.97	-.72
23	6.21	2.41	38.59	37.08	1.37
24	5.44	2.90	29.58	34.10	.95
25	6.98	2.17	60.34	41.63	2.17
26	3.91	3.54	20.93	32.21	.35
27	4.41	3.01	21.33	30.66	.48
28	5.29	3.09	36.35	41.00	1.10
29	4.90	2.92	26.88	34.33	.74
30	1.17	3.31	3.41	25.37	-.76
31	2.34	3.64	8.45	25.16	-.36
32	-5.49	4.25	-30.66	37.38	-3.42
33	-3.36	4.49	-18.45	32.31	-2.41

APPENDIX C

Males in Target Courses (N=235)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
34	-4.26	4.73	-31.43	40.28	-2.98
35	3.50	3.47	3.62	33.26	-1.72
36	4.24	3.50	5.53	38.23	-.01
37	1.33	3.13	1.40	15.82	-.78
38	1.44	3.56	3.86	21.20	-.69
39	5.66	3.08	39.91	42.97	1.28
40	5.45	2.98	28.02	39.21	.90
41	3.47	2.95	8.69	25.90	-.09
42	4.41	2.95	15.89	28.65	.32
43	-5.11	4.46	-44.41	41.97	-3.54
44	1.04	3.78	1.07	28.90	-.86
45	2.71	3.41	11.48	23.82	-.19
46	3.56	3.91	17.17	36.60	.17
47	4.00	3.70	24.70	39.08	.48
48	2.95	3.06	6.69	17.34	-.27
49	3.41	3.32	12.10	23.22	-.02
50	2.87	3.28	7.06	21.12	-.28
51	3.46	3.51	12.11	28.67	.00
52	3.31	3.73	11.10	26.93	-.06
53	3.91	2.91	16.48	27.00	.23
54	5.00	2.96	23.77	31.90	.68
55	3.54	2.94	7.46	22.40	-.12
56	4.33	3.10	15.59	32.46	.29
57	2.59	3.23	5.74	19.00	-.38
58	4.53	2.59	9.78	20.44	.42
59	5.82	2.34	18.37	28.76	.71
60	4.18	3.11	9.09	22.53	.08
61	4.22	3.72	9.95	33.57	.11
62	2.72	3.95	6.60	22.84	-.33
63	4.03	3.09	14.89	27.37	.21
64	3.41	3.53	7.58	21.50	-.14
65	3.08	3.05	11.69	24.87	-.10
66	4.34	3.27	14.96	30.85	.28
67	3.68	3.11	8.30	25.63	.05

APPENDIX C

Males in Target Courses (N=235)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	STANDARD	MEAN ATTRACTIVENESS
68	3.75	3.53	16.29	34.50		.19
69	3.75	2.87	6.74	16.94		-.09
70	3.13	3.42	7.69	19.67		-.20

APPENDIX D

Incentive Attractiveness Data

for

Females in Target (Weather Observer) Course

APPENDIX D

Females in Target (Weather Observer) Course (N=29)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
1	3.13	3.58	4.95	17.97	-.20
2	2.75	3.75	5.71	19.47	-.24
3	3.82	2.84	1.93	22.97	-.15
4	3.00	2.87	.90	2.63	-.34
5	2.76	3.80	8.80	29.55	-.14
6	3.48	3.95	11.21	35.35	.06
7	6.83	2.49	57.48	48.64	2.07
8	6.86	2.15	59.79	37.84	2.14
9	3.52	3.54	7.81	33.86	-.04
10	2.38	3.74	11.90	26.97	-.13
11	3.17	3.09	5.57	28.15	-.17
12	4.55	2.73	16.28	28.66	.41
13	3.68	2.97	8.62	32.03	.02
14	7.52	.91	41.00	42.54	1.70
15	1.62	2.78	-3.34	28.14	-.08
16	3.93	3.20	18.07	29.23	.35
17	1.75	4.03	.83	27.33	-.58
18	2.55	4.28	-2.55	33.06	-.53
19	5.28	3.19	38.95	48.84	1.23
20	5.17	3.13	29.61	43.46	.93
21	1.21	2.73	1.72	14.84	-.65
22	1.03	2.65	.61	17.28	-.72
23	6.41	2.75	36.45	49.53	1.37
24	5.07	2.79	22.73	32.16	.89
25	6.76	2.12	52.23	49.24	1.90
26	4.24	3.46	14.13	29.95	.29
27	4.93	3.05	29.91	39.77	.89
28	4.17	4.74	30.44	35.04	.76
29	5.24	3.26	29.68	38.41	.94
30	1.07	3.56	2.65	27.86	-.65
31	2.90	3.57	14.42	28.97	.05
32	-6.21	3.72	-23.21	47.34	-2.80
33	-4.10	4.02	-14.49	36.00	-2.14
34	-4.93	4.03	-26.41	36.99	-2.65

APPENDIX D

Females in Target (Weather Observer) Course (N=29)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
35	4.03	3.65	9.98	36.59	.13
36	4.07	4.23	12.77	42.25	.22
37	2.38	3.84	7.27	27.67	-.27
38	2.77	3.27	2.67	3.44	-.33
39	5.90	2.92	31.74	46.19	1.13
40	6.83	2.24	34.71	35.38	1.39
41	3.52	3.23	6.81	32.55	-.07
42	2.93	4.37	6.00	35.74	-.20
43	-6.55	2.57	-46.98	44.00	-3.58
44	-.38	3.61	-1.59	29.34	-.91
45	1.10	4.38	8.06	35.77	-.49
46	2.59	4.97	-.95	36.22	-.47
47	3.38	4.79	15.16	42.12	.16
48	4.34	3.32	6.59	33.06	.09
49	3.93	4.09	7.36	42.80	.03
50	4.00	3.20	1.20	40.19	-.15
51	4.17	3.29	2.06	39.54	-.09
52	2.75	3.91	20.68	36.22	.21
53	3.48	4.02	10.96	27.52	.05
54	5.79	2.58	22.88	34.42	.85
55	2.28	3.19	11.00	28.04	-.17
56	2.17	3.07	11.77	27.88	-.17
57	3.14	2.91	15.59	31.05	.12
58	4.59	2.96	13.80	22.59	.35
59	5.38	2.83	13.53	26.35	.49
60	1.83	2.56	8.20	27.05	-.34
61	2.03	2.86	8.40	27.02	-.30
62	2.97	2.88	8.32	23.37	-.12
63	5.17	2.74	27.11	36.42	.85
64	.97	4.16	8.96	24.79	-.48
65	2.45	3.22	16.15	31.56	.02
66	2.48	3.10	15.28	33.88	-.01
67	2.69	3.21	17.03	32.03	.09
68	4.97	3.33	2.18	35.49	.07

APPENDIX D

Females in Target (Weather Observer) Course (N=29)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
69	3.41	3.82	8.85	20.90	-.03
70	3.03	3.00	11.97	22.85	.00

APPENDIX E

Incentive Attractiveness Data
for
All other Courses Outside
Target Courses Combined

Note: The sample size for these data is 249. This is not the sum of each of the individual courses listed in subsequent appendices (e.g., Jet Mechanics) since there were a number of students from several other courses not listed. However, the number of students from each of these courses was too small to generate a meaningful separate analysis.

APPENDIX E

All Other Courses Outside Target Courses Combined (N=249)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
1	1.28	3.10	1.47	18.96	-.79
2	1.34	3.31	1.93	19.89	-.77
3	4.22	2.88	8.06	24.09	.04
4	4.15	2.80	5.09	20.54	-.07
5	3.30	3.40	5.45	21.33	-.24
6	3.91	3.43	10.87	28.49	.05
7	6.70	2.85	63.07	43.03	2.17
8	6.83	2.52	59.37	43.20	2.09
9	3.88	3.27	14.23	28.66	.15
10	4.55	3.24	19.61	31.59	.45
11	2.55	3.19	7.35	21.52	-.35
12	4.07	3.30	13.73	26.19	.17
13	2.06	3.13	9.15	24.23	-.40
14	6.65	2.88	43.77	42.38	1.60
15	2.52	3.67	7.25	29.17	-.36
16	4.09	3.30	16.89	30.61	-.27
17	4.09	3.63	10.67	27.31	.09
18	4.61	3.85	13.01	31.46	.27
19	5.07	3.27	38.60	37.82	1.11
20	4.46	3.36	24.43	33.78	.57
21	1.50	3.03	6.29	49.38	-.61
22	1.45	3.07	2.06	15.31	-.74
23	5.47	3.74	35.52	39.37	1.11
24	4.85	3.44	28.22	36.34	.76
25	6.88	2.21	56.49	41.54	2.02
26	4.65	3.10	23.39	36.27	.58
27	4.20	3.21	19.62	31.17	.37
28	4.78	3.56	32.49	38.61	.87
29	4.36	3.32	25.19	34.97	.57
30	1.66	3.80	7.14	26.24	-.55
31	3.37	3.44	14.10	29.81	.03
32	-5.46	4.25	-35.23	40.77	-3.33
33	-3.38	4.61	-19.88	36.15	-2.43
34	-4.23	4.38	-29.87	39.37	-2.91
35	3.53	4.10	5.15	36.09	-.20

APPENDIX E

All other Courses Outside Target Courses Combined (N=249)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
36	4.07	4.16	9.19	42.29	.04
37	1.34	3.31	4.28	20.48	-.70
38	1.37	3.47	4.45	27.11	-.69
39	5.28	3.44	38.02	41.30	1.14
40	5.19	3.33	29.61	39.05	.88
41	3.08	3.25	8.54	24.88	-.20
42	3.88	3.40	15.03	32.70	-.07
43	-5.01	4.83	-46.68	44.38	-3.56
44	.94	4.08	-2.05	36.62	-.85
45	3.22	3.32	13.13	26.86	-.03
46	4.20	3.82	17.93	39.73	.32
47	3.45	3.94	20.08	40.98	.22
48	3.04	3.04	6.82	22.64	-.26
49	3.29	3.40	11.42	27.99	-.07
50	2.50	3.27	6.55	24.36	-.38
51	2.88	3.44	10.31	29.10	-.19
52	2.84	3.89	10.35	28.85	-.20
53	4.12	3.08	18.75	35.55	-.33
54	5.63	5.37	32.79	37.56	1.06
55	3.24	3.21	8.43	25.62	-.17
56	3.92	3.39	12.49	30.90	.10
57	2.93	3.35	7.14	24.77	-.27
58	4.87	2.62	13.57	25.88	.34
59	5.82	2.40	21.22	31.45	.77
60	4.95	3.07	13.18	30.22	.35
61	4.88	3.51	10.84	35.11	.26
62	3.44	3.59	6.15	26.27	-.19
63	4.03	3.41	17.73	31.70	.28
64	3.82	3.52	7.25	28.69	-.07
65	3.51	3.09	17.47	32.86	-.16
66	4.12	3.53	16.26	31.96	.26
67	3.44	3.54	10.68	29.75	-.06
68	3.28	3.84	17.69	34.38	.11
69	3.90	3.02	8.82	27.77	-.01
70	2.71	3.57	6.52	27.17	-.34

APPENDIX F

Incentive Attractiveness Data

for

Jet Engine Mechanics

APPENDIX F

Jet Engine Mechanics (N=69)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	STANDARD	MEAN ATTRACTIVENESS
1	.93	2.89	1.29	29.11		-.79
2	1.06	3.46	1.27	23.76		-.77
3	3.88	2.91	7.19	30.46		.03
4	4.40	2.74	2.58	21.76		.01
5	2.26	3.56	1.31	24.06		-.50
6	2.70	3.95	11.44	34.04		-.11
7	6.23	3.51	54.30	49.69		1.94
8	6.45	3.28	55.84	43.61		2.03
9	3.50	3.53	11.15	31.34		.07
10	4.75	3.39	22.33	38.18		.67
11	2.17	3.26	6.30	29.04		-.37
12	4.26	3.28	12.92	30.28		.29
13	1.81	2.89	10.32	29.17		-.33
14	6.22	3.45	31.81	41.43		1.28
15	2.80	3.33	6.33	30.82		-.23
16	3.33	3.28	14.34	32.10		.12
17	4.16	3.79	6.63	29.40		.08
18	4.67	3.86	9.21	34.59		.27
19	4.42	3.62	37.40	38.46		1.00
20	3.86	3.93	21.68	37.97		.46
21	1.00	3.27	1.09	29.90		-.78
22	1.07	3.50	-.56	22.18		-.78
23	7.15	1.46	45.42	39.01		1.88
24	5.07	3.30	30.41	37.79		.98
25	6.54	2.93	50.22	45.83		1.89
26	4.77	2.98	23.69	41.87		.72
27	3.71	3.61	14.97	32.96	—	.23
28	4.42	3.66	26.24	40.26		.72
29	4.42	3.55	24.88	34.51		.68
30	1.49	3.92	6.49	25.97		-.52
31	3.90	3.21	16.25	34.29		.31
32	-5.12	4.47	-35.23	40.77		-3.20
33	-3.19	5.12	-22.04	37.84		-2.39
34	-3.73	4.81	-31.21	40.78		-2.78
35	3.06	4.31	-3.35	38.11		-.46

APPENDIX F

Jet Engine Mechanics (N=69)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
36	3.39	4.80	.95	45.76	-.26
37	1.78	3.97	2.05	24.11	-.58
38	1.57	4.13	2.93	29.75	-.61
39	4.67	4.09	32.45	44.04	.95
40	4.62	4.00	27.46	41.26	.80
41	2.91	3.91	8.22	33.83	-.15
42	3.46	4.14	9.02	32.85	-.01
43	-5.07	4.92	-49.42	44.72	-3.60
44	.81	4.53	-1.69	36.72	-.81
45	3.51	3.09	15.91	30.54	.21
46	4.25	4.14	15.53	42.25	.36
47	2.78	4.26	15.23	46.08	.03
48	2.68	3.28	4.43	28.86	-.31
49	2.86	3.77	9.02	35.79	-.14
50	2.97	3.35	8.43	28.81	-.14
51	3.57	3.52	10.68	29.11	.07
52	1.96	4.28	5.51	36.20	-.44
53	4.17	3.25	18.87	37.97	.44
54	5.55	2.99	32.07	37.77	1.13
55	2.91	3.91	5.37	28.84	-.24
56	3.51	4.06	9.13	33.06	.01
57	2.93	3.72	4.51	18.36	-.26
58	5.23	2.73	11.95	25.45	.47
59	5.99	2.56	16.50	24.85	.77
60	5.55	2.69	15.50	28.90	.64
61	5.44	3.53	14.51	32.89	.59
62	3.64	3.81	4.83	22.83	-.09
63	3.62	3.67	16.82	29.36	.26
64	3.54	3.85	7.48	25.53	-.04
65	2.70	3.34	8.08	29.84	-.21
66	3.59	4.26	12.20	35.10	.12
67	3.19	4.16	8.01	35.54	-.10
68	2.61	4.20	10.02	30.28	-.17
69	3.61	2.80	5.48	24.42	-.08
70	2.61	4.00	7.45	26.22	-.24

APPENDIX G

Incentive Attractiveness Data

for

Missile Systems Analyst Specialists

APPENDIX G

Missile System Analyst Specialists (N=37)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
1	1.81	2.66	.61	3.28	-.61
2	2.19	2.60	1.92	10.37	-.50
3	4.46	2.24	3.64	8.76	-.03
4	4.54	2.37	1.69	5.09	-.06
5	3.70	3.09	5.73	18.37	-.12
6	4.62	2.72	11.65	27.48	.22
7	6.92	2.34	58.27	41.86	1.87
8	6.87	2.35	57.46	46.73	1.84
9	3.76	3.26	14.18	23.83	.12
10	4.14	3.34	14.03	17.27	.19
11	2.24	2.88	5.49	16.88	-.40
12	3.38	3.30	8.01	17.48	-.11
13	2.27	3.17	3.82	5.41	-.44
14	7.46	1.52	59.51	39.46	2.01
15	2.95	3.93	12.30	27.54	-.09
16	6.03	2.72	34.26	34.02	1.08
17	3.89	3.45	10.26	19.54	.04
18	4.78	3.66	9.20	19.34	.18
19	5.38	3.14	34.89	34.02	.97
20	4.62	3.22	24.16	29.37	.54
21	1.81	2.48	5.31	18.11	-.49
22	1.49	2.34	3.45	11.46	-.64
23	1.11	4.19	11.62	30.33	-.45
24	3.35	3.78	22.64	32.02	.26
25	6.97	1.50	65.95	38.85	2.08
26	4.84	2.75	21.99	31.02	.53
27	4.43	3.43	24.41	32.32	.52
28	4.49	3.50	31.14	35.29	.70
29	5.41	2.68	33.92	34.66	.95
30	1.11	3.72	3.11	19.47	-.67
31	2.76	3.22	6.18	17.58	-.28
32	-6.38	3.55	-32.97	36.33	-3.03
33	-4.54	3.66	-28.25	37.21	-2.56
34	-5.68	3.40	-38.46	38.93	-3.00
35	3.68	3.18	1.28	32.93	-.25

APPENDIX G

Missile System Analyst Specialists (N=37)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
36	4.87	3.20	.34	38.84	-.04
37	.84	2.49	1.87	6.30	-.76
38	.95	2.79	3.19	11.94	-.70
39	6.24	2.47	46.08	41.23	1.42
40	5.68	2.45	32.16	37.11	.96
41	3.57	2.26	13.25	27.28	.06
42	5.11	2.35	21.65	35.66	.57
43	-6.22	3.94	-47.16	41.91	-3.38
44	1.65	3.36	1.59	22.99	-.61
45	3.62	2.94	9.12	18.95	-.05
46	4.46	3.12	19.32	32.16	.39
47	3.38	3.66	22.28	33.14	.26
48	3.76	2.80	7.88	20.81	-.05
49	4.16	2.93	14.45	27.13	.20
50	2.87	3.19	6.47	18.23	-.25
51	3.24	3.26	10.98	24.99	-.07
52	4.41	3.14	15.02	22.59	.26
53	4.16	2.33	20.34	31.13	.36
54	5.46	2.58	31.59	32.87	.90
55	2.76	2.64	3.01	8.96	-.37
56	3.81	2.94	9.48	18.95	.01
57	2.11	3.16	.17	17.74	-.56
58	4.51	2.26	7.68	18.11	.09
59	5.95	2.03	14.69	25.30	.55
60	5.89	2.13	15.17	26.68	.55
61	5.95	2.35	9.63	21.49	.41
62	3.97	2.83	2.52	6.97	-.15
63	5.24	2.75	20.64	28.71	.57
64	3.57	3.89	-.88	29.14	.38
65	3.87	2.37	20.80	30.95	.32
66	4.49	2.95	15.44	28.43	.29
67	3.30	2.83	9.97	27.53	-.08
68	3.27	3.23	16.04	31.49	.08
69	4.05	2.85	4.88	11.57	-.07
70	1.70	3.29	-.86	17.67	-.62

APPENDIX H

Incentive Attractiveness Data

for

Aerospace Ground Equipment

APPENDIX H

Aerospace Ground Equipment (N=97)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
1	1.04	3.25	.75	16.85	-1.00
2	.825	3.23	2.14	22.63	.05
3	4.07	3.11	11.47	25.96	-.08
4	3.83	3.00	9.37	25.89	-.14
5	3.73	3.23	8.12	21.70	.14
6	4.36	2.99	11.87	28.94	.13
7	6.83	2.72	68.30	40.05	2.54
8	6.77	2.33	59.69	41.93	2.24
9	3.84	3.30	17.09	30.31	.18
10	4.46	3.32	19.85	30.37	.41
11	2.79	3.13	7.96	19.59	-.36
12	4.31	3.33	18.76	29.33	.34
13	1.85	3.21	11.17	28.61	-.48
14	6.42	3.09	42.99	43.08	1.62
15	1.50	3.91	3.60	29.08	-.80
16	3.74	3.41	13.63	28.18	.04
17	3.94	3.63	14.18	29.15	.11
18	4.43	3.82	18.92	34.65	.38
19	5.49	3.01	39.98	39.14	1.30
20	4.89	3.12	24.67	32.63	.67
21	1.50	3.06	10.93	73.52	-.56
22	1.55	3.12	2.34	12.00	-.83
23	6.10	2.89	41.37	40.61	1.49
24	5.17	3.22	29.06	38.03	.88
25	7.01	1.95	52.73	41.75	2.07
26	4.62	3.27	24.16	36.51	.59
27	4.19	2.87	23.41	33.20	.47
28	5.07	3.60	36.60	40.56	1.10
29	3.52	3.37	21.75	36.36	.26
30	1.96	3.75	8.49	28.04	-.54
31	3.24	3.73	16.19	30.42	.01
32	-4.94	4.67	-36.78	43.48	-3.60
33	-2.93	4.65	-15.57	36.55	-2.45
34	-3.80	4.47	-26.57	39.57	-3.00
35	3.59	4.43	13.32	34.96	-.01

APPENDIX H

Aerospace Ground Equipment (N=97)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
36	4.09	4.24	17.74	43.56	.26
37	.99	2.89	5.33	20.40	-.86
38	1.29	2.97	2.97	29.97	-.87
39	5.16	3.35	40.28	40.64	1.24
40	5.23	3.35	31.52	40.46	.97
41	2.89	3.19	8.05	20.89	-.34
42	3.47	3.19	18.00	35.17	.13
43	-3.86	5.24	-41.62	46.43	-3.51
44	.59	4.17	-1.20	39.85	-.63
45	2.78	3.75	15.10	28.99	-.13
46	3.80	3.82	18.51	42.37	.22
47	3.41	3.92	24.75	40.22	.33
48	2.74	2.90	9.77	22.38	-.27
49	3.02	3.12	12.94	24.44	-.15
50	2.00	3.07	5.90	26.63	-.61
51	2.27	3.29	11.51	35.12	-.37
52	2.56	3.54	10.82	27.67	-.32
53	3.94	3.25	17.24	39.51	.21
54	5.69	7.84	35.22	41.65	1.14
55	3.26	2.97	13.57	30.36	-.07
56	3.73	3.13	17.09	35.52	.05
57	3.07	3.20	12.71	30.75	-.15
58	4.46	2.72	16.90	29.46	.31
59	5.41	2.47	26.35	36.36	.84
60	4.14	3.58	9.45	32.95	-.01
61	3.81	3.95	4.33	39.75	-.25
62	3.04	3.65	7.94	31.85	-.31
63	3.67	3.32	18.26	34.40	.18
64	4.32	2.85	11.69	29.49	.12
65	3.58	3.17	21.15	35.67	.25
66	4.02	3.30	19.63	33.32	.30
67	3.37	3.47	14.01	30.65	-.03
68	3.89	3.47	23.66	39.75	.41
69	4.22	3.10	13.95	33.63	.17
70	3.63	3.03	12.63	30.89	-.02

APPENDIX I

Incentive Attractiveness Data

for

Missile Mechanics

APPENDIX I

Missile Mechanics (N=29)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
1	1.89	3.86	4.32	10.19	-.54
2	2.14	3.97	.95	11.46	-.58
3	4.76	2.85	6.93	19.42	.09
4	4.03	2.87	3.81	12.16	-.13
5	3.48	3.36	7.08	20.56	-.17
6	4.00	3.40	10.04	21.94	.02
7	6.38	2.78	60.90	39.66	1.72
8	7.41	1.66	64.43	46.04	2.07
9	4.76	2.47	11.38	23.71	.21
10	4.72	2.94	21.23	34.43	.45
11	2.79	3.01	9.92	16.20	-.23
12	3.66	3.14	7.51	13.66	-.11
13	2.69	3.23	7.46	11.77	-.30
14	6.86	2.45	53.14	41.85	1.68
15	3.62	2.88	13.54	31.09	.04
16	4.38	3.04	12.22	22.98	.15
17	4.24	3.91	9.10	26.03	.05
18	4.52	4.53	9.67	27.03	.12
19	5.49	3.01	45.05	39.91	1.20
20	4.03	3.01	32.60	36.97	.60
21	1.38	2.40	3.83	9.56	-.65
22	1.21	2.38	3.45	9.58	-.65
23	4.90	4.23	22.58	30.76	.52
24	4.93	3.99	27.04	35.73	.67
25	7.00	2.16	60.72	36.45	1.89
26	4.31	3.39	23.39	31.64	.42
27	4.48	3.10	14.24	19.01	.22
28	4.55	3.24	37.46	35.28	.82
29	5.28	2.89	28.49	35.79	.74
30	1.45	4.09	11.48	27.57	-.45
31	3.14	3.25	12.51	27.58	-.09
32	-6.00	3.85	-40.72	49.42	-3.23
33	-4.00	4.26	-25.83	37.43	-2.46
34	-5.21	3.94	-35.17	42.23	-2.94
35	3.69	3.88	8.22	39.82	-.10

APPENDIX I

Missile Mechanics (N=29)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESSS
36	4.14	3.73	15.69	39.54	.19
37	2.00	3.20	11.06	27.19	-.35
38	2.14	3.84	15.80	30.08	-.21
39	5.55	3.31	40.55	41.83	1.10
40	5.52	2.87	32.31	38.87	.89
41	2.97	2.88	5.52	7.77	-.30
42	3.93	3.36	15.27	26.63	.14
43	-5.76	4.67	-60.52	41.63	-3.68
44	1.45	3.92	-7.36	40.23	-.92
45	2.86	3.07	8.13	10.93	-.26
46	5.03	3.97	23.45	42.12	.56
47	4.20	3.72	12.43	45.38	.12
48	2.93	2.88	3.52	12.99	-.36
49	3.21	3.63	10.80	26.64	-.12
50	2.07	3.70	5.96	18.43	-.47
51	2.31	3.83	7.28	18.66	-.38
52	3.28	4.15	17.72	26.83	.08
53	4.62	2.95	24.45	29.53	.51
54	5.55	3.24	35.75	37.08	.98
55	3.59	2.72	8.85	18.74	-.09
56	4.69	3.08	13.15	29.15	.24
57	2.76	3.47	2.67	24.05	-.41
58	5.48	2.53	15.79	23,68	.46
59	6.21	2.37	28.38	35.85	.92
60	5.31	2.59	22.43	33.77	.59
61	5.83	2.67	27.83	40.06	.83
62	3.21	3.98	8.25	32.94	-.18
63	3.90	3.66	15.95	36.43	.15
64	2.90	4.36	2.93	35.73	-.38
65	4.38	3.16	24.59	34.61	.46
66	4.48	3.21	17.21	27.63	.30
67	3.79	3.22	10.79	21.68	0.00
68	2.52	4.09	23.72	32.57	.08
69	3.35	3.51	8.52	34.08	-.15
70	.724	3.75	-5.09	28.65	-.75

APPENDIX J

Incentive Attractiveness Data

for

Total Sample

-81

APPENDIX J

Total Sample (N=513)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	STANDARD MEAN ATTRACTIVENESS
1	1.88	3.15	2.63	16.92	-.59
2	2.15	3.37	4.27	19.13	-.49
3	3.87	2.88	5.68	19.95	-.09
4	3.72	2.95	3.85	16.59	-.17
5	3.41	3.20	4.50	18.63	-.22
6	4.25	3.33	10.51	26.24	.13
7	6.86	2.47	63.37	41.78	2.20
8	6.94	2.24	60.90	42.10	2.14
9	3.70	3.34	14.28	29.01	.13
10	4.06	3.43	17.35	30.78	.29
11	2.32	3.17	6.54	20.21	-.39
12	3.99	3.17	12.90	24.70	.15
13	2.58	3.23	8.59	22.69	-.28
14	6.77	2.56	44.84	42.31	1.65
15	2.21	3.56	5.81	27.76	-.44
16	4.01	3.30	16.07	29.93	.24
17	3.48	3.68	8.78	25.92	-.08
18	4.06	3.92	9.85	28.79	.08
19	5.24	3.13	38.91	39.70	1.66
20	4.70	3.21	25.54	35.02	.66
21	1.48	2.82	5.60	36.93	-.64
22	1.38	2.80	2.84	15.02	-.69
23	5.87	3.16	37.18	39.98	1.24
24	5.20	3.18	28.77	35.14	.86
25	6.94	2.17	57.89	41.97	2.06
26	4.32	3.33	22.02	34.30	.48
27	4.35	3.10	21.05	31.55	.45
28	4.99	3.43	34.45	39.61	.97
29	4.67	3.14	26.46	34.91	.52
30	1.41	3.57	5.44	26.32	-.17
31	2.86	3.56	11.82	28.08	-.12
32	-5.56	4.18	-32.87	39.76	-3.18
33	-3.41	4.55	-19.35	34.75	-2.33
34	-4.29	4.53	-30.72	39.78	-2.85
35	3.54	3.79	4.62	34.90	-.20

APPENDIX J

Total Sample (N=513)

ITEM	LIKERT SCALE MEAN	LIKERT SCALE S.D.	MONEY SCALE MEAN	MONEY SCALE S.D.	MEAN STANDARD ATTRACTIVENESS
36	4.17	3.87	7.71	40.60	.04
37	1.42	3.28	3.28	19.42	-.67
38	1.57	3.58	4.07	26.12	-.62
39	5.52	3.24	38.84	42.32	1.22
40	5.39	3.13	29.44	39.07	.92
41	3.30	3.11	8.67	25.88	-.13
42	4.08	3.28	15.15	31.29	.23
43	-5.17	4.53	-46.51	43.17	-3.49
44	.97	3.93	-.67	33.31	-.88
45	2.89	3.46	12.28	26.19	-.11
46	3.82	3.96	16.67	38.38	.22
47	3.72	3.89	22.12	40.28	.36
48	3.07	3.08	6.84	21.21	-,22
49	3.37	3.43	11.69	27.09	-.02
50	2.78	3.29	6.62	24.31	-.30
51	3.25	3.48	10.90	29.82	-.07
52	3.07	3.82	11.53	28.80	-.09
53	4.03	3.06	17.56	31.73	.30
54	5.24	2.99	28.60	35.32	.86
55	3.35	3.09	8.25	24.44	-.13
56	4.04	3.27	14.04	31.58	.19
57	2.80	3.27	7.04	22.94	-.28
58	4.72	2.61	11.85	23.44	.27
59	5.80	2.40	19.50	30.02	.72
60	4.44	3.14	11.09	26.92	.19
61	4.43	3.63	10.27	33.98	.17
62	3.10	3.74	6.54	24.71	-.23
63	4.14	3.23	17.14	30.28	.30
64	3.48	3.61	7.54	25.52	-.12
65	3.26	3.09	14.97	29.65	.06
66	4.16	3.41	15.71	31.56	.26
67	3.53	3.34	10.01	28.18	-.04
68	3.61	3.69	17.56	34.63	.20
69	3.82	3.00	7.97	23.24	-.04
70	2.96	3.48	7.42	23.97	-.23

APPENDIX K

Preliminary List of Incentives

APPENDIX K

PRELIMINARY LIST OF INCENTIVES

1. Getting one free admission ticket to the base movie (includes popcorn and soft drink.
2. Being able to ride a bus to school for one week rather than marching.
3. Choice of "Stateside" or "Overseas" assignment.
4. Choice of regions of United States (e.g. East Coast, Midwest, etc.) where base of assignment is located.
5. Special award for outstanding performance sent to new Commanding Officer.
6. Special award for outstanding performance sent to parents.
7. Getting a 20% reduction in the price of transportation to and from Chicago.
8. Getting paid an extra $20 every two weeks.
9. Going on a field trip one weekend to see your specialty at work on another Air Force base.
10. Getting a free case of beer.
11. Receiving quarters allowance in order to live off base for the last three months of your training course.
12. Getting a promotion (2nd stripe) at completion of your course.
13. Receiving one day additional leave at the end of your course or each 5 days you finished early.
14. Choice of base of assignment from those available at the end of your course.
15. Receiving the Air Force Commendation Medal.
16. Having your choice of roommates.
17. Having your own private room.
18. Having your choice of being on A or B shift.
19. Having extra duty on a Saturday.
20. Having a mandatory study period on one weekday evening.
21. Having a mandatory study period every weekday for one week.
22. Being excused from squadron duty (e.g. cut grass, shovel snow, etc.) for one day.
23. Being excused from squadron duty (e.g. cut grass, shovel snow, etc.) for one week.

24. Getting a three day pass during the week (e.g. Wednesday, Thursday, and Friday).

25. Getting a three day pass over a weekend during the course.

26. Getting a Straggler's Pass for one day.

27. Getting a Straggler's Pass for one week.

28. Having your mileage restricted to 50 miles for one weekend.

29. Being able to have beer in your room.

30. Being allowed to use one week of your leave sometime during the course.

31. Being able to leave class one hour earlier for one day.

32. Being able to leave class one hour earlier every day for a week.

33. Being able to sleep late for one day, if you were on B shift.

34. Being able to sleep late for one week, if you were on B shift.

35. Not having to go to class for one day.

36. Being allowed to have a weekend visitor (male or female) stay at the guest house at the usual cost.

37. Being allowed to have a weekend visitor (male or female) stay at the guest house for free.

38. Being permitted to skip TI notes for one day.

39. Being permitted to skip TI notes for one week.

40. Getting a 50% discount on laundry service for one week.

41. Getting free laundry service for two weeks.

42. Getting a free haircut.

43. Receiving an orientation ride in an aircraft at another base.

44. Getting a free night at the Chevron Club (worth $5 in merchandise.)

45. Having permission to get a part-time job in town.

46. Not having to march back to barracks after chow every day for one week.

47. Not having to march back to barracks after chow for one day.

48. Being put on separate rations for one week so you would not have to eat in the chow hall.

49. Getting one free round trip to Champaign.

50. Being chosen as a special helper for students who are having trouble with learning the course material.

APPENDIX L

Effort Rating Checklist

Note: Instrument presented here is the form used by the instructors. The self-rating near identical except that the items were phrased in the first person and items 11 and 12 were omitted.

DATE_____

STUDENT
NAME_____ AF SERVICE NUMBER_____

EFFORT RATING CHECKLIST (1)

Occupational Research Center Purdue University

NOTE: Your answers will be kept in the strictest confidence. No one on this base, or any other place in the Air Force, will ever see what you as an individual have expressed. This information is for research purposes only, and access is limited to Dr. R. D. Pritchard and members of his staff from Purdue University.

DIRECTIONS: Circle the number which comes closest to how you feel about the question. Feel free to circle any of the numbers, not just those which have statements attached.

IMPORTANT: TRY TO FOCUS ON HOW HARD THE STUDENT TRIED rather than how well he succeeded in the course. In other words, rate effort, not performance.

1. How energetic was this student?

9---Exceptionally wide awake, a real "goer".
8---
7---More "on his toes" than most.
6---
5---Normally alert.
4---
3---Appeared somewhat slow and plodding in his actions.
2---
1---Always seemed "dead tired".

2. How did this student act during breaks?

9---He sometimes kept right on working during breaks.
8---
7---He was usually the first one back from a break.
6---
5---He came and went on breaks just like most students.
4---
3---He was constantly the last one back from a break.
2---
1---He had to be encouraged to come back to work at the end of a break.

3. How often, on the average, did the student ask quwstions in class that he really wanted to learn something from?

1---Never
2---
3---Once every two weeks
4---
5---Once a week
6---
7---Several times a week
8---
9---Several times a day

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4. How often, on the average, did this student come to class tired?

1---Never.
2---
3---Once a month.
4---
5---Once every two weeks.
6---
7---Once a week.
8---
9---Three times a week or more.

5. Did this student pay attention in class?

9---Always extremely alert and attentive.
8---
7---Usually listened carefully to what was going on.
6---
5---Followed the discussion most of the time.
4---
3---Often daydreamed, even dozed occasionally.
2---
1---He might as well not have been there.

6. How often did this student voluntarily study outside of class and remedial instruction (R/I) time?

1---Never.
2---
3---Once a month.
4---
5---Once every two weeks.
6---
7---Once a week.
8---
9---Three times a week or more.

7. How efficient was this student in the classroom?

1---Because he was so disorganized and inefficient, he needed to be told what to do and watched carefully.
2---
3---Somewhat disorganized and inefficient.
4---
5---About average in efficiency and organization.
6---
7---Was generally well organized and efficient.
8---
9---Always well organized and efficient, he always had needed materials, programmed texts, and used them effectively.

8. Did this student make good use of class time?

1---Rarely made good use of class time, he did not work hard nor concentrate.
2---
3---Sometimes made good use of class time, but usually took it easy and didn't try hard.
4---
5---About half the time he made good use of class time, the other half he didn't.
6---
7---Usually made good use of class time, but sometimes took it easy.
8---
9---Always made good use of class time, he always worked hard and concentrated.

9. All things considered, how much effort did this student put into the course?

1---Very little effort, he didn't really try at all.
2---
3---Slight amount of effort, but not very often and not very much, needed occasional prodding.
4---
5---About average effort, usually appeared to be trying.
6---
7---Quite a bit of effort, he tried pretty hard.
8---
9---A very great deal of effort, he tried as hard as he possibly could. He put out 100% of the time.

10. This rating is for (circle One): _____

BL 1 BL 2 BL 3 BL 4 BL 5 BL 6 Total Course

11. I have observed this student for approximately _____ days.

12. Based on my knowledge of this student, I feel confident in my rating (circle one): (per cent confident)

0 10 20 30 40 50 60 70 80 90 100

INSTRUCTOR'S NAME _____
(print)

APPENDIX M

Student Opinion Questionnaire

a. Course Evaluation

b. Overall Air Force

c. Social Desirability

Note: Item numbers corresponding to each scale are listed on the last page of this appendix.

NAME _____ AF SERVICE NO. _____

DATE _____

STUDENT OPINION QUESTIONNAIRE

Occupational Research Center - Purdue University

NOTE: Your answers will be kept in the strictest confidence. No one on this base, or any other place in the Air Force will ever see what you as an individual have expressed. This information is for research purposes only, and access is limited to Dr. R. D. Pritchard and members of his staff from Purdue University.

DIRECTIONS: Please read each of the following items and indicate how much you agree or disagree with its contents. For example, if you strongly disagree with a statement, you should place a check mark (✓) under Strongly Disagree, or if you agree with a statement, you should place a check mark under Agree. Feel free to check any one of the spaces.

SDA means Strongly Disagree
DA means Disagree
N means Neutral or Not sure
A means Agree
SA means Strongly Agree

	SDA	DA	N	A	SA
1. Most of your technical instructors' classroom presentations are well organized.	( )	( )	( )	( )	( )
2. You usually have enough time during technical school class days for individual study.	( )	( )	( )	( )	( )
3. Technical school classrooms are usually too small for the number of students in a class.	( )	( )	( )	( )	( )
4. Your technical instructors' presentations usually just repeat what you were assigned to read.	( )	( )	( )	( )	( )
5. Most of your instructors appear to know their subject matter.	( )	( )	( )	( )	( )

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SDA means Strongly Disagree
DA means Disagree
N means Neutral or Not sure
A means Agree
SA means Strongly Agree

		SDA	DA	N	A	SA
6.	Most of the time in technical school you feel like making the Air Force your career because you could not get a better paying job as a civilian.	( )	( )	( )	( )	( )
7.	Most training films help you to understand the technical subject matter more fully.	( )	( )	( )	( )	( )
8.	The Air Force is efficient and well run.	( )	( )	( )	( )	( )
9.	Most training films and slide presentations motivate you to learn technical material.	( )	( )	( )	( )	( )
10.	The Air Force is concerned about the individual person and his or her problems.	( )	( )	( )	( )	( )
11.	You would never hesitate to go out of your way to help someone in trouble with the course.	( )	( )	( )	( )	( )
12.	Your instructor hardly ever refers you to material which corrects your training guide.	( )	( )	( )	( )	( )
13.	Most of your technical instructors' presentations do <u>not</u> repeat what you were assigned to read.	( )	( )	( )	( )	( )
14.	Most of the time your technical instructors' classroom presentations are not easy to understand.	( )	( )	( )	( )	( )
15.	You are always as careful about your manner of dress as Air Force regulations demand.	( )	( )	( )	( )	( )
16.	Most training devices that you use help you to better understand new concepts.	( )	( )	( )	( )	( )
17.	You have never intensely disliked anyone at this base.	( )	( )	( )	( )	( )

SDA means Strongly Disagree
DA means Disagree
N means Neutral or Not sure
A means Agree
SA means Strongly Agree

		SDA	DA	N	A	SA
18.	Additional duties you are assigned usually interfere with your study.	( )	( )	( )	( )	( )
19.	There have been times when you felt like rebelling against your Air Force superiors even though you knew they were right.	( )	( )	( )	( )	( )
20.	Most of the time your technical instructor evades answering questions asked during class.	( )	( )	( )	( )	( )
21.	Most of the written tests you receive in technical school are easy to understand.	( )	( )	( )	( )	( )
22.	Most of the time technical classroom temperatures are satisfactory.	( )	( )	( )	( )	( )
23.	When you are in the Air Force you have good living conditions (housing, food, etc.).	( )	( )	( )	( )	( )
24.	You have never been irked when your superiors expressed ideas very different from your own.	( )	( )	( )	( )	( )
25.	There have been occasions when you took advantage of someone at Chanute or in the course.	( )	( )	( )	( )	( )
26.	Most of the time you are given enough time to finish your technical school tests.	( )	( )	( )	( )	( )
27.	Most paper-and-pencil tests you are given in technical school are thorough.	( )	( )	( )	( )	( )
28.	Most of your technical instructors' presentations are made clear by examples.	( )	( )	( )	( )	( )
29.	Most of the time in technical school you feel you are wasting four years of your life by being in the Air Force.	( )	( )	( )	( )	( )

SDA means Strongly Disagree
DA means Disagree
N means Neutral or Not sure
A means Agree
SA means Strongly Agree

		SDA	DA	N	A	SA
30.	You have never felt that the Air Force punished someone without cause.	( )	( )	( )	( )	( )
31.	Most of the time your instructor must add to or correct the training literature because he ~~says~~ it is not current.	( )	( )	( )	( )	( )
32.	You have almost never felt the urge to tell someone off at this base.	( )	( )	( )	( )	( )
33.	Most of the time technical school classroom lights are bright enough.	( )	( )	( )	( )	( )
34.	Most of your student study guides are easy to understand.	( )	( )	( )	( )	( )
35.	Most of your technical school classrooms are properly ventilated.	( )	( )	( )	( )	( )
36.	There have been occasions while in the Air Force when you felt like smashing things.	( )	( )	( )	( )	( )
37.	The Air Force is doing an important job for the country.	( )	( )	( )	( )	( )
38.	You never make a long trip without checking the safety of your car as required by Air Force regulations.	( )	( )	( )	( )	( )
39.	Most of the time you need individual help to learn technical material.	( )	( )	( )	( )	( )
40.	Most of the time in technical school you are pressed to learn material faster than you are able to.	( )	( )	( )	( )	( )
41.	You should be given more time on technical school tests.	( )	( )	( )	( )	( )
42.	You are proud to be in the Air Force.	( )	( )	( )	( )	( )

SDA means Strongly Disagree
DA means Disagree
N means Neutral or Not sure
A means Agree
SA means Strongly Agree

		SDA	DA	N	A	SA
43.	Most of your skills are being properly used by the Air Force.	( )	( )	( )	( )	( )
44.	Most of the time in technical school you feel antimilitary because you are against the war in Vietnam.	( )	( )	( )	( )	( )
45.	Your instructor usually explains new technical material thoroughly.	( )	( )	( )	( )	( )
46.	The Air Force is a cold calculating machine that treats people like numbers.	( )	( )	( )	( )	( )
47.	Most of your training literature is understandable.	( )	( )	( )	( )	( )
48.	Most of the time in technical school your ways of looking at life directly conflict with military life.	( )	( )	( )	( )	( )

Course Evaluation items:	1, 2, 3, 4, 5, 7, 9, 12, 13, 14, 16, 18, 20, 21, 22, 26, 27, 28, 31, 33, 34, 35, 39, 40, 41, 45, 47
Overall Air Force Attitude:	6, 8, 10, 23, 29, 37, 42, 43, 44, 46, 48
Social Desirability:	11, 15, 17, 19, 24, 25, 30, 32, 36, 38

Appendix N

Training Satisfaction Questionnaire

NAME _____ AF SERVICE NO. _____

TRAINING SATISFACTION QUESTIONNAIRE

Occupational Research Center -- Purdue University

NOTE: Your answers will be kept in the strictest confidence. No one on this base, or any other place in the Air Force will ever see what you as an individual have expressed. This information is for research purposes only, and access is limited to Dr. R. D. Pritchard and members of his staff from Purdue University.

The purpose of this questionnaire is to give you a chance to tell how you feel about training, what things you are satisfied with and what things you are not satisfied with.

Below you will find statements about training.

---Read each statement carefully.

---Decide how satisfied you feel about the aspect of training described by the statement.

Remember: Keep the statement in mind when deciding how satisfied you feel about that aspect of training.

Do this for all statements. Please answer every item.

Be frank and honest. Give a true picture of your feelings.

To answer these statements, ask yourself: How satisfied am I with this aspect of training?

VS means I am very satisfied with this aspect of training.
S means I am satisfied with this aspect of training.
N means I can't decide whether I am satisfied or not with this aspect of training.
DS means I am dissatisfied with this aspect of training.
VDS means I am very dissatisfied with this aspect of training.

(check the space which best describes how you feel)

With regard to training, this is how I feel about:	VDS	DS	N	S	VS
1. Being able to keep busy all the time	( )	( )	( )	( )	( )
2. The chance to work alone in training	( )	( )	( )	( )	( )
3. The chance to do different things from time to time .	( )	( )	( )	( )	( )
4. The chance to be "somebody" in the community	( )	( )	( )	( )	( )
5. The way the technical instructors handle their students	( )	( )	( )	( )	( )
6. The competence of the technical instructors in teaching their subjects	( )	( )	( )	( )	( )
7. Being able to do things that don't go against my conscience	( )	( )	( )	( )	( )
8. The way the Air Force provides for steady employment	( )	( )	( )	( )	( )
9. The chance to do things for other people	( )	( )	( )	( )	( )
10. The chance to tell people what to do	( )	( )	( )	( )	( )
11. The way the tactical instructors handle their men	( )	( )	( )	( )	( )

VS means I am very satisfied with this aspect of training.
S means I am satisfied with this aspect of training.
N means I can't decide whether I am satisfied or not with this aspect of training.
DS means I am dissatisfied with this aspect of training.
VDS means I am very dissatisfied with this aspect of training.

(check the space which best describes how you feel)

		VDS	DS	N	S	VS
12.	The chance to do something that makes use of my abilities	( )	( )	( )	( )	( )
13.	The way Air Force policies are put into practice	( )	( )	( )	( )	( )
14.	My pay and the amount of work I do	( )	( )	( )	( )	( )
15.	The chances for advancement in my Air Force job	( )	( )	( )	( )	( )
16.	The freedom to use my own judgment	( )	( )	( )	( )	( )
17.	The working conditions ...	( )	( )	( )	( )	( )
18.	The chance to try my own methods in the course ..	( )	( )	( )	( )	( )
19.	The competence of the tactical instructors in making decisions	( )	( )	( )	( )	( )
20.	The way my co-workers get along with each other	( )	( )	( )	( )	( )
21.	The praise I get for doing a good job	( )	( )	( )	( )	( )
22.	The feeling of accomplishment I get from the course	( )	( )	( )	( )	( )

Appendix O

Student Attitude Questionnaire

DATE _____

NAME _____ AF SERVICE NUMBER _____

STUDENT ATTITUDE QUESTIONNAIRE
Occupational Research Center--Purdue University

NOTE: Your answers will be kept in the strictest confidence. No one on this base, or any other place in the Air Force, will ever see what you as an individual have expressed. This information is for research purposes only, and access is limited to Dr. R.D. Pritchard and members of his staff from Purdue University.

Directions: Circle the number which comes closest to how you feel about the question. Feel free to circle any of the numbers, not just those with statements attached.

If there were no draft and you were not in the Air Force, would you volunteer?

1---Definitely not. That would be the last thing in the world that I would do.

2

3---Probably not. There is a slight chance I might, but I probably wouldn't.

4

5---I'd say there is a 50-50 chance. I might or I might not.

6

7---I probably would.

8

9---I definitely would. There is no doubt in my mind.

If there were no draft, would you tell a friend who you liked that he should volunteer?

1---Definitely not. That would be the last thing in the world that I would do.

2

3---Probably not. There is a slight chance I might, but I probably wouldn't.

4

5---I'd say there is a 50-50 chance. I might or I might not.

6

7---I probably would.

8

9---I definitely would. There is no doubt in my mind.

If you were offered the chance to reenlist for a second four years, would you reenlist?

1---Definitely not. That would be the last thing in the world that I would do.
2
3---Probably not. There is a slight chance I might, but I probably wouldn't.
4
5---I'd say there is a 50-50 chance. I might or I might not.
6
7---I probably would.
8
9---I definitely would. There is no doubt in my mind.

Do you think you will make the Air Force a career when the time comes to think seriously about reenlisting?

1---Definitely not. That will be the last thing in the world that I will do.
2
3---Probably not. There is a slight chance I might, but I probably won't.
4
5---I'd say there is a 50-50 chance. I might or I might not.
6
7---I probably will.
8
9---I definitely will. There is no doubt in my mind.

Would you advise a buddy to reenlist?

1---Definitely not. That would be the last thing in the world that I would do.
2
3---Probably not. There is a slight chance I might, but I probably wouldn't
4
5---I'd say there is a 50-50 chance. I might or I might not
6
7---I probably would.
8
9---I definitely would. There is no doubt in my mind.

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Appendix P

Background Information

BACKGROUND INFORMATION

The contents of this questionnaire will be treated as highly confidential information. No one will ever see your answers to any of these questions except Dr. Pritchard's staff at the Occupational Research Center at Purdue University.

Circle the number which applies, or fill in the blank.

1. Name (print) _____

2. Service number _____ DATE _____

3. Your marital status:
   - single = 1
   - married = 2
   - separated = 3
   - divorced = 4
   - widowed = 5

4. Your age at last birthday _____

5. Sex:
   - male = 1
   - female = 2

6. Ethnic group:
   - Caucasian = 1
   - Negro = 2
   - Latin American = 3
   - Oriental = 4
   - Other = 5

7. Your parents' total family income per year (before taxes):

   - less than $3000 (less than $58 per week) = 0
   - 3000 - 4999 ($58 - $96 per week) = 1
   - 5000 - 6999 ($97 - $135 per week) = 2
   - 7000 - 8999 ($136 - $173 per week) = 3
   - 9000 - 10999 ($174 - $212 per week) = 4
   - 11000 - 12999 ($213 - $250 per week) = 5
   - 13000 - 14999 ($251 - $288 per week) = 6
   - 15000 - 16999 ($289 - $326 per week) = 7
   - 17000 - 18999 ($327 - $365 per week) = 8
   - over $19000 (over $365 per week) = 9

8. How many brothers and sisters do you have? _____

(circle the number which applies)

9. Father's main occupation:

professional (lawyer, doctor, etc.)	= 9
technical (draftsman, accountant)	= 8
managerial (office manager, store manager)	= 7
clerical (office worker, bookkeeper)	= 6
sales (retail clerk)	= 5
craftsman (repairman, carpenter, plumber)	= 4
farmer (owner, manager)	= 3
operative (factory worker)	= 2
laborer (helpers, manual laborer)	= 1
service-nontechnical (janitorial, waiter)	= 0

10. Mother's main occupation:

professional (lawyer, doctor, etc.)	= 9
technical (draftsman, accountant)	= 8
managerial (office manager, store manager)	= 7
clerical (office worker, bookkeeper)	= 6
sales (retail clerk)	= 5
craftsman (repairman, carpenter, plumber)	= 4
farmer (owner, manager)	= 3
operative (factory worker)	= 2
service-nontechnical (cleaning, sewing)	= 1
housewife	= 0

11. Are your parents living together = 1
one or both deceased = 2
separated or divorced = 3

12. What is the highest grade completed by your father?

1	2	3	4	5	6	7	8	elementary
9	10	11	12					high school
13	14	15	16					college
17	18	19	20					graduate school

13. What is the highest grade completed by your mother?

1	2	3	4	5	6	7	8	elementary
9	10	11	12					high school
13	14	15	16					college
17	18	19	20					graduate school

14. What is the highest grade you have completed?

1	2	3	4	5	6	7	8	elementary
9	10	11	12					high school
13	14	15	16					college
17	18	19	20					graduate school

(circle the number which applies)

15. Where was your high school located?
- large city suburban = 1
- medium-sized city = 2
- small town = 3
- country = 4
- large inner city = 5
- other, or did not attend = 0

16. How big was your high school?
- less than 500 students = 1
- 501 - 1000 = 2
- 1001 - 2500 = 3
- 2501 - 4000 = 4
- larger than 4000 = 5

17. How big is the town you consider your hometown?
- less than 1000 = 1
- 1000 - 4000 = 2
- 5000 - 24,000 = 3
- 25,000 - 99,000 = 4
- 100,000 - 500,000 = 5
- larger than 500,000 = 6

18. Where is your hometown located?
- Pacific Coast - Wash., Ore., Calif., Hawaii = 0
- Northwest - Wyo., Idaho, Montana, Alaska = 1
- West - Utah, Colo., Nev., S. Dakota, N. Dak. = 2
- Southwest - Ariz., New Mex., Texas, Okla., Arkansas = 3
- Midwest - Kan., Neb., Iowa, Mo., Ill., Ind., Minn., Ken., Wis., Mich., Ohio = 4
- South - La., Miss., Ala., S. Carolina, Tenn., Ga., Fla. = 5
- Northeast - N. Y., Vermont, Mass., N. H., Maine, Conn., R. I. = 6
- Middle Atlantic - Del., W. Va., Md., Pa., N. J., Va., N. Carolina, Washington D. C. = 7
- Other (specify: _____) = 8

19. What is the main reason you enlisted in the Air Force (circle the one most important)?
- To avoid the draft = 1
- A desire for adventure = 2
- To be on my own = 3
- No jobs in civilian life = 4
- To learn a skill = 5
- Career opportunities were attractive = 6
- Family tradition = 7
- To serve my country = 8
- Other (specify: _____) = 0

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Appendix Q

Privilege Buying Form

PRIVILEGE BUYING FORM

DIRECTIONS: Where appropriate, fill in the number of days, weeks, etc. you wish to have the privileges. Indicate the number of Performance Credit Points each costs and add them up at the bottom of the form. After filling in your name and AF number, fold the form and place it in an envelope with the correct number of Performance Credit Certificates. Put your name and AF number on the outside of the envelope. Put the envelope in the box provided in the squadron area.

1. Bus ride (1 Point/Day — Number of days desired_____ — Number of Points enclosed_____

2. Straggler's Pass (4 Points per week) — Number of weeks desired_____ Dates (Monday through Friday only) From_____to_____ From_____to_____ From_____to_____ — Number of Points enclosed_____

3. Choice of uniform (2 Points per week) — Number of weeks desired_____ Dates (monday through Friday only) From_____to_____ From_____to_____ From_____to_____ — Number of Points enclosed_____

4. Excused from Squadron details (3 Points per week) — Number of weeks desired_____ Dates (Monday through Sunday) From_____to_____ From_____to_____ From_____to_____ — Number of Points enclosed_____

5. Choice of A or B shift (20 Points) (Electrical only) — Number of Points enclosed_____

6. Leaving class 1 hour early (7 Points) — Number of hours desired_____ Dates & Times: 1) _____ _____ 2) _____ _____ 3) _____ _____ 4) _____ _____ — Number of Points enclosed_____

7. Excused from Class one day (25 Points) — Dates desired: 1) _____ 2) _____ — Number of Points enclosed_____

8. 3-Day Pass (30 Points) — Date desired: 1) _____ — Number of Points enclosed_____

TOTAL NUMBER OF POINTS ENCLOSED: _____

NAME:_____ AF NUMBER _____ TODAY'S DATE:_____

(Appendix Q Cont. Privilege Buying Form)

Letters and Certificates of Commendation:

If you are in the last block of your course, fill in the parts below:

A. I wish to have a letter and certificate of commendation sent to my new Commanding Officer. _____YES _____NO

B. I wish to have a letter and certificate of commendation sent to my parents _____YES _____NO

PARENT'S NAME AND ADDRESS:

NAME: _____

ADDRESS: _____

_____

_____

Remember to put your name and AF Number on the outside of the envelope.

ELECTRICAL (AER) _____ WEATHER (WO) _____ A SHIFT____ B SHIFT____

SEPARATE RATION (SEP RAT) _____

Appendix R

Manual for Incentive System I

Note: The manual presented here is that used for the AER course. The WX manual was identical except that no mention of points for speed of completing the course were discussed, and the number of points given for different exam scores were different. (See text.)

STUDENT MANUAL FOR CHANUTE PERFORMANCE CREDIT SYSTEM

AIRCRAFT ELECTRICAL REPAIRMEN (3ABR43330)

THIS MANUAL DESCRIBES HOW YOU CAN EARN SPECIAL PRIVILEGES BY YOUR PERFORMANCE AT TECHNICAL SCHOOL. READ IT - IT IS IMPORTANT TO YOU.

INTRODUCTION

As you may know Air Training Command has sponsored a group from Purdue University to do a project with the Aircraft Electrical Repairmen and Weather Observer courses at Chanute. Many of you in the 57th Student Squadron have participated in interviews, taken questionnaires, etc. The information we collected from you has been analyzed and we are now ready to start a program which uses this information.

THE PURPOSE OF THIS PROGRAM WE ARE ABOUT TO START IS TO MAKE PERFORMING WELL IN YOUR TECH SCHOOL COURSES AS ATTRACTIVE AS POSSIBLE TO YOU.

To do this, we are making available to you certain special privileges which can be earned by good performance in tech school.

The following special privileges are included in the program:

1. Bus rides to or from school.
2. Commendation Certificate sent to parents.
3. Commendation Certificate sent to Commanding Officer at new base of assignment.
4. Choice of A or B shift.
5. Straggler's Passes.
6. Being able to leave class earlier.
7. Being able to skip class for a day.
8. Three-day passes over the weekend.
9. Wearing any uniform you choose to class.
10. Being excused from squadron details.

These special privileges can be earned as a result of good performance in tech school. To encourage good performance even further, two things can happen if your performance is especially bad. These are:

1. Mandatory study periods on weekday evenings.
2. Mandatory study periods on Saturday.

EARNING THE SPECIAL PRIVILEGES

You earn these special privileges by your performance on the block examinations given at tech school. The higher your performance on these examinations, the more privileges you can earn. When we speak of performance, we are talking about two things: 1) your score on the written part of the block exam, and 2) the speed with which you finish the block. The higher your score and the faster you finish a block, the more privileges you can earn.

Here's how the system works: Based on the score you receive on the written part of the examinations given at the end of each block and based on how fast you finished the block, you will be given a number of Performance Credit Certificates. A Performance Credit Certificate is an actual piece of paper that can be used to "buy" privileges. You might think of these Performance Credit Points as money that can be used to "purchase" privileges. The more of them you earn, the more privileges you can get.

As mentioned above, the number of Performance Credit Points you get after each block depends on both the score you receive on the written portion of the block exam and on the speed with which you finish the block. The chart below shows how many Performance Credit Points you get for different block written exam scores.

If your block written exam score is::	You get this many Performance Credit Points:
77 or less	0
78	2
79	4
80	6
81	8
82	10
83	12

84	14
85	16
86	17
87	18
88	18
89	19
90	19
91	20
92	20
93	21
94	21
95	22
96	22
97	23
98	23
99	24
100	25

For each block of the course there is a normal block time. These are listed below:

Block I	15 class days (90 hours)
Block II	10 class days (60 hours)
Block III	15 class days (90 hours)
Block IV	15 class days (90 hours)
Block V	15 class days (90 hours)
Block VI	10 class days (60 hours)

The number of Performance Credit Points you get depends on how much earlier than these normal times you finish the block. For every hour that you finish the block early, you get two points. In other words, you get 12 points for every day you finish earlier than normal itme. For example, if you got an 84 on the written portion of a the Block III exam and you took it after being in the block for 12 days instead of the usual 15 you would get 14 points for your score of 84, and 36 points for finishing 3 days early.

Thus, you would get a total of 50 points.

Another example would be if you finished Block 1 in 15 days with a score of 88 on the written portion of the exam. In this case you would get 18 Points for your score, but NO Points for finishing early.

As you know, block exams consist of both written and performance sections. For some blocks you get an actual percentage score for the performance section of the exam, while for other blocks you get a Satisfactory (S) or Unsatisfactory (U). You earn Performance Credit Points only for your score on the written portion of the exam, but not on the performance section. However, you must at least pass the performance portion of the exam to be eligible for Points. In other words, any Points you have earned for your score on the written portion of the exam and for finishing early will be awarded only when and if you pass the performance section.

BUYING PRIVILEGES

Once you have earned some Performance Credit Points you can use them to buy privileges. Most of the privileges you actually have to buy, that is, you must exchange some of your Performance Credit Certificates to get the Privileges. A description of these privileges and how much they "cost" is listed below:

1. Bus ride for one day to or from class. This privilege applies only to male airmen since WAF ride the bus already. The bus will pick up B shift students at 12:15 at the chow hall area (corner of L & 6th) and take them to the tech school area. The bus will then pick up students finishing A shift at the corner of South Cental avenue and South Road and leave for the chow hall at 12:15. To ride the bus costs 1 (one) Performance Credit Point per day. However, the bus holds only 44 passengers, and choice of who rides in it is on a first come, first served basis. If less than 44 passengers decide to buy a ride on a given day, there will be no problem, everyone will ride. If more than 44 wish to buy a ride, the first 44 people will be able to get on. This privilege can be bought for as

many days as you wish provided you have enough Performance Credit Points.

2. Straggler's Pass for one week. Buying this privilege means that for one week (Monday through Friday) you do not have to march to and from class. This privilege costs 4 (four) Performance Credit Points. It can be bought for as many weeks as you wish. If you buy this privilege, along with an authorization slip, you will receive a metal pin. This pin must be worn on the pocket of the uniform when you are straggling. These pins must be returned at the end of your earned straggling period.

3. Choice of Uniform for one week. Buying this privilege means that you may wear any Air Force approved uniform to class that you wish. In other words, you would not have to wear fatigues to class for one week if you bought this privilege. Choice of uniform for one week costs 2 (two) Performance Credit Points. It can be bought for as many weeks as you wish. This privilege is subject to one restriction, however, When the dress code for the day is 4 or 5, the warmer fatigue type uniforms must be worn to protect you from the weather. Unfortunately, the performance point system will not be able to give you a "refund" of points on these colder days. That is, if you have earned the privilege to wear any uniform for a week and for two days of that week you must wear fatigues because of cold weather, you will not be able to apply those two days to another week.

4. Being excused from squadron details for one week. Buying this privilege means that you do not have to do any squadron details such as policing the area, shoveling snow, etc. for one week. This privilege costs 3 (three) Performance Credit Points. It can be bought as many times as you wish.

5. Leaving class one hour early. If this privilege is earned, you can leave class one hour earlier than usual. This privilege cost 7 (seven) Performance Credit Points. If you wish to buy more than one hour off, you may do so. This can be one hour off on different days, or several hours off on the same day.

6. Day off from class. You may also earn an entire day off from class on a Tuesday, Wednesday, or Thursday. This privilege costs 25 Performance Credit Points.

7. 3-Day Pass over the weekend. You may also earn a Monday or a Friday off and get a 3-Day Pass over the weekend. This privilege costs 30 Performance Credit Points.

Although you can have as many days off as you can earn, military regulations say that you cannot have more than a 72 hour pass. Therefore, you could not, for example, get

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the Thursday before the pass off as well. This would amount to a 96 hour pass and therefore would violate regulations.

8. Choice of A or B shift. The privileges covered so far can be bought as many times as you wish. However, this one, choice of A or B shift can be bought only once. That is, if you choose to spend your points on changing shift, you can only do it once, you cannot change back again. Furthermore, this privilege is on an as available basis. If, for example, B shift is completely full, you will not be able to change from A to B shift. This privilege costs (20) Performance Credit Points.

   If you earn a day off or a 3-day pass, the time off you get does not "count against you" for the next block. For example, if you finished Block 3 in 77 class hours (worth 36 Performance Credit Points) you could buy a 3-day pass. But since you would already have finished block 3, you would actually be in Block 4 when you got the pass (or day off). But you might also want to finish block 4 quickly so you could earn more points. So, since you earned one day off (six hours) this 6 hours would not be counted in figuring the time it took you to finish Block 4. Block 4 time would be the usual 68 hours plus the 6 hours you had off, making a total of 74 hours. Then, if you finished Block 4 in 40 hours (24 hours less than the recomputed time of 74) you would earn 48 Points.

There are some special privileges which are determined by your performance - that is, the number of Performance Credit Points you earn - but which you do not actually have to buy, these include commendation certificates.

1. Commendation Certificate sent to new Commanding Officer. This special award will also be given on the basis of performance in the course. If you earn an average of at least 40 Performance Credit Points per block, this special certificate will be sent to the Commanding Officer at your new base.

2. Commendation Certificate sent to Parents. As with the certificate sent to your new Commanding Officer, this certificate will be sent to your parents if your average number of points is at least 40 points per block, and if you wish the certificate to be sent.

   NOTE: If you average 40 Points per block or more, certificates will be sent to both your new Commanding Officer and your parents, if you so desire. These awards will not actually have to be bought. They will be sent automatically if you wish them to be sent.

All of the things we have been discussing so far attempt to make high performance in tech school attractive. Especially poor performance is also considered by the system. This is done by having mandatory study periods for poor performance.

1. Mandatory study period, Monday, Tuesday and Wednesday evening. If you fall too far behind in the course you will be required to attend mandatory study periods on Monday, Tuesday and Wednesday evenings. You will be required to attend these study sessions if you get more than 30 class hours behind during any block of the course. The normal times for each block were given on page 3. Thus, you would be required to attend these study sessions if, for example, you were still in Block I after 112 class hours or were still in Block 2 after 86 class hours. You will be required to attend these sessions each week until you pass the block. Furthermore, if you fail a block exam, you will be required to attend these sessions until you pass that block exam.

2. Mandatory study period on Saturday. In addition to the weekday evening mandatory study sessions failing a block exam will make you be required to attend Saturday mandatory study sessions in the morning and the afternoon. You will attend these Saturday sessions until you pass the block.

Both the evening and Saturday mandatory study sessions will be held in a room at the squadron.

These mandatory study sessions are in addition to any remedial instruction the tech school requires of you.

In addition to these mandaroty study sessions, you will receive no Performance Credit Points for exams taken after 30 hours more than the normal block time. For example, if you took the Block III exam after 125 hours of instruction in the block and got a 90 on the written exam you would still receive no Performance Credit Points. Furthermore, if you fail a block and are forced to repeat it, you are not eligible to get more Performance Credit Points for that block. However, once you pass that block exam, you are eligible to earn Points as usual after that.

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However, there is one exception to these rules about failing a block exam. If you take the block exam before the normal block time and fail it, you will not be penalized in any way. So, for example, if you took the Block I exam after 70 hrs. of instruction and failed the exam, you would not be penalized with mandatory study sessions, loss of Points, etc. These penalties would only apply if you failed the exam after studying the normal number of class hours or more.

OTHER TECH SCHOOL PERFORMANCE

Your performance at tech school is determined not only by your exam scores and speed of finishing the course, but also the way you conduct yourself at tech school. For example, disrupting classes, poor attitudes, and gross lack of effort are indicators of poor overall performance. The system considers these aspects of performance in the following way. If one of your tech school instructors feels that your level of effort, attitudes, etc. are extremely poor he may, in consultation with the Chief Instructor, disqualify you from buying privileges for a specified period of time. This period of time will be at the discretion of the instructor, but will depend on the nature of the infraction. However, it will typically be no longer than one week at a time. During this time you will be unable to buy privileges even if you have the points to do so, and any privileges you have purchased for use during that suspension period you will not be able to use. However, points you have paid out for that privilege will be refunded to you. NOTE: This suspension of privileges does not mean that you actually lose points you have earned, but that you can not use the points you have for privileges. Also, you can continue to earn more points

while you are under this suspension.

MILITARY PERFORMANCE

Your performance at Chanute as a member of the United States Air Force is determined not only by your performance in tech school but other aspects of military life as well. Poor performance in these military aspects will be considered by this system in a manner similar to that discussed above. Certain major infractions of Air Force regulations such as disobeying a direct order, repeatedly missing mandatory formations, going AWOL, using narcotics, assault, and other major infractions will result not only in the usual penalty under the Uniform Code of Military Justice, but will also result in you being unable to purchase privileges for a specified time. This penalty may be given by a military training instructor, in consultation with the Squadron Commander when they determine a major violation of regulations has occurred. The length of time an airman will not be permitted to buy privileges will also be at their discretion depending on the nature of the violation and will typically be for one week.

NOTE: The Performance Credit Points you have earned cannot be taken away, but for the specified time period you will be unable to spend them. Furthermore, you can still earn more Performance Credit Points while under the restriction not to spend them.

MECHANICS OF THE SYSTEM

A few days after each block exam you take, you will be given an envelope containing the Performance Credit Certificates you have earned. When you get them keep them in a safe place since if you lose them they will not be replaced.

To actually buy the privileges you will use the following procedure. Fill in the "Privilege Buying Form" A copy of this form is attached to the back of this manual. Additional copies of this form will be made available tt the squadron area. To fill in the form; follow the directions given at the top of the form.

As the directions state, you fill in the form and put it and the correct number of Performance Credit Certificates in an envelope. This envelope is then put in the box provided in the squadron area.

These envelopes will be picked up several times per week and two or three days later you will be given authorization slips for the privileges you have selected. You cannot actually use the earned privileges until you get an authorization slip. Do not lose these authorization slips. They are the only means you have to show that you have earned the privilege.

Many of these authorization slips must be signed by one or more people (e.g., your tech school instructor) before they become valid. It is your responsibility to get them signed. The procedures for getting the various authorization slips signed is described on the authorization slips you will be getting. Follow this procedure carefully.

You can buy privileges, that is submit a Privilege Buying Form as often as you wish. In other words, you can spend all your points at one time or spread them out, or even save them for as long as you wish.

ELIGIBILITY

All airmen in the course will participate in the system no matter what stage of the course they happen to be in. However, there is one exception to this. Points will not be given for

the Block VI exam since you would be unable to spend them before you left the base.

QUESTIONS ABOUT THE SYSTEM

If you have any questions about the system, ask the supervisory personnel at the squadron area. They are familiar with the system. If they do not know the answer to your question, call the Training Research Application Branch at the Base. The number is 3947/3497. They will be able to answer your questions, or at least find out the answer in a day or so.

Appendix S

Manual for Incentive System II

Note: The manual presented here is that used for the AER course only. The WX manual was similar except that no discussion of speed of completing the course was made.

STUDENT MANUAL FOR CHANUTE PERFORMANCE CREDIT SYSTEM
AIRCRAFT ELECTRICAL REPAIRMEN (3ABR43330)

THIS MANUAL DESCRIBES HOW YOU CAN EARN SPECIAL PRIVILEGES BY YOUR PERFORMANCE AT TECHNICAL SCHOOL. READ IT - IT IS IMPORTANT TO YOU.

INTRODUCTION

As you may know Air Training Command has sponsored a group from Purdue University to do a project with the Aircraft Electrical Repairmen and Weather Observer courses at Chanute. The students in the 57th Student Squadron have been participating in the program.

THE PURPOSE OF THIS PROGRAM IS TO MAKE PERFORMING WELL IN YOUR TECH SCHOOL COURSES AS ATTRACTIVE AS POSSIBLE TO YOU.

To do this, we are making available to you certain special privileges which can be earned by good performance in tech school.

The following special privileges are included in the program:

1. Letter of Recognition -- sent to Commanding Officer at new base of assignment.
2. Letter of Recognition -- sent to parents.
3. Permission to proceed to and from class individually.
4. Being able to leave class earlier.
5. Getting a day off during the week.
6. Getting a 72-Hour Pass.
7. Wearing any uniform you choose to class.
8. Being excused from squadron details.

EARNING THE SPECIAL PRIVILEGES

Your earn these special privileges by your performance in the block exams given in the course. The better you do on these block exams (both speed of finishing the block and actual score) the more privileges you can earn.

Here's how the system works: Based on your performance on block exams, you will be given a number of Performance Credit Points. You might think of these Performance Credit Points as money that can be used to "buy" privileges. The more Points you earn, the more privileges you can get.

The number of Performance Credit Points you get depends on two things: (1) the score you get on the written block exams, and (2)

the speed with which it takes you to finish the block. The higher your score and the faster you finish the block, the more Points you can earn.

The first way to earn Points is by your actual scores on the block exams. You have been given a form which includes your name, AF number, and five "Exam Target Scores", one target score for each of the first five blocks of the course. These target scores represent the block written exams scores you must beat to start earning Performance Credit Points. If you get better than that target score on a block written exam you earn Performance Credit Points. If you get that target score or lower on a block written exam, you earn NO Performance Credit Points. For every point above the target score you get on a written block exam you get 2 (two) Performance Credit Points. For example, suppose Airman Smith had exam target scores like these:

Block	Target Scores
Block I	83
Block II	85
Block III	84
Block IV	80
Block V	83

This would mean that if he got better than 83 on the Block I exam he would get Performance Credit Points. If he got better than 85 on the Block II exam he would get Points, better than 84 in Block III, and so on. Suppose he got an 89 on the Block I written exam. Since his target score was 83, and he gets 2 (two) Performance Credit Points for every percentage point above his target score, he would earn 12 Performance Credit Points. (89 - 83 = 6, 6 x 2 = 12). Suppose he got a 90 on the Block II exam. Since his target score was 85, he would be 5 points above it and thus get another 10 Performance Credit Points. Suppose he got a score of 80 on the Block III exam.

Since this is below his target score of 84 he would get NO Performance Credit Points.

The second way to earn Performance Credit Points is by the speed with which you finish Blocks of the course. On the sheet you have been given you also have five "Time Target Scores", one for each block. As with the Exam Target Scores, these are the times you must beat to get Performance Credit Points. For every hour you finsih the Block faster than your time target score, you get 2 (two) Performance Credit Points. These Performance Credit Points are in addition to the Points you get for your actual Block exam score. For example, suppose the same Airman Smith described before had the following Time Target Scores:

Block	Time Target Scores
Block I	81 hours
Block II	53 hours
Block III	78 hours
Block IV	75 hours
Block V	82 hours

If he finished Block I in 76 hours he would have beaten his target time by 5 hours and thus get 10 Performance Credit Points. If he finished that Block in 76 hours and got a socre of 89 he would get an additional 12 Performance Credit Points for beating his Exam Target Score of 83 and thus get a total of 22 Points (10 for speed plus 12 for exam score) for Block I. Suppose he finished Block II in 50 hours with an exam score of 83. He would get 6 Points for beating his time target by three hours, but would get NO Points for his exam score since he was below his exam target score. (His exam score was 83 and his exam target score for Block II was 85). Suppose for Block III he finished in 80 hours with an exam score of 91. He would get NO Points for speed since he took more time than

his target score but he would get 14 Points for beating his exam target score by 7 percentage points.

Each airman in the 57th Squadron will have his own set of target scores. The target scores are based on measured academic achievement level. The higher your academic achievement level, the higher your target scores. The idea behind this is that it is easier for a high academic achievement student to get high scores on the exams and finish the blocks quickly and thus it is easier for him to get Points. In contrast, it is harder for the lower academic achievement student to get high scores and finish quickly and thus get Points. In the system here, all students will have an equal chance to get Points and therefore privileges, since academic achievement is taken into consideration.

POOR PERFORMANCE

As you know, block exams consist of both written and performance sections. For some blocks you get an actual percentage score for the performance section of the exam, while for other blocks you get a Satisfactory (S) or Unsatisfactory (U). You earn Performance Credit Points only for your score on the written portion of the exam, but not on the performance section. However, you must at least pass the performance portion of the exam to be eligible for Points. In other words, any Points you have earned for your score on the written portion of the exam and for finishing early will be awarded only when and if you pass the performance section.

Furthermore, since both speed of finishing the course and actual scores on exams are important, certain conditions must be met to earn Points. First, you cannot earn any points for a Block if you take 5 days (30 hours) or more over your time target score to finish the Block. Thus, if Airman Smith took 105 hours to finish Block IV

(time target score of 75 plus 30 hours) he would, of course, get NO Points for speed, but he would also get NO Points for his score no matter how high his score was.

The second set of conditions deal with failing a Block. If you fail a Block exam and then re-take it after your time target score you get NO Points for your score on the second try. Thus, if Airman Smith took the Block IV exam after 60 hours and failed it, then took it again after 85 hours, he would get NO points for his second score since 85 hours is over his time target score of 75 hours. Also, if he took the Block IV exam for the first time after 80 hours and failed it, he would get NO Points for his score when he re-took the exam. However, there is one exception to this. If you fail a block exam before you exam target time and retake it before your target time you are eligible to get points for the score you get on the second try. Thus, if Airman Smith took the Block IV exam after 50 hours and failed it , then re-took it after 70 hours, he would get points for his score on the second try if his new score was over his target exam score.

BUYING PRIVILEGES

Once you have earned some Performance Credit Points you can use them to buy privileges. Most of the privileges you actually have to buy, that is, you must pay some of your Performance Credit Points to get the privileges. A description of these privileges and how much they "cost" is listed below:

1. Permission to proceed individually to and from class. Buying this privilege means that for one week (Monday through Friday) you do not have to march to or from class. This privilege costs 4 (four) Performance Credit Points. It can be bought for as many weeks as you wish. If you buy this privilege, along with an authorization slip, you will receive a metal pin. This pin must be worn on the pocket of your uniform when you are walking. These pins must be returned at the end of your earned walking period. When this privilege is earned you are free to get to and from class on any schedule you choose provided you meet

required formations. For example, a student on A shift could go from chow to the BX and then walk back to the barracks. He would, however, be required to get to TI notes on time.

2. Choice of Uniform for 1 (one) week.
Buying this privilege means that you may wear any Air Force approved uniform to class that you wish. In other words, you would not have to wear fatiques to class for one week if you bought this privilege. Choice of Uniform for one week costs 2 (two) Performance Points. It can be bought for as many weeks as you wish. With this privilege you may also wear any uniform you wish to TI notes and other functions.

3. Being excused from squadron details for one week. This privilege costs 7 (seven) Performance Credit Points per week. Purchase of this privilege get you out of the following squadron details:

   a) CQ runner on weekends (separate rations personnel)

   b) cutting grass

   c) policing squadron area

   d) parades and retreats - although there is no guarantee that purchase of this privilege will get you out of parades and retreats, an attempt will be made to select only those troops who have not purchased this privilege.

4. Leaving class one hour early.
If this privilege is earned, you can leave class one hour earlier than usual. This privilege costs 7 (seven) Performance Credit Points. If you wish to buy more than one hour off, you may do so. This can be one hour off on different days, or several hours off on the same day.

5. 72-Hour Pass.
You may earn a 72-Hour Pass over the weekend (Monday or Friday off). This privilege costs 30 Performance Credit Points. Military regulations say that you cannot have more than a 72-Hour Pass. Therefore, you could not, for example, get a 3-Day Pass over Friday, Saturday, and Sunday, and get the Thursday before the pass off as well. This would amount to a 96 hour pass and therefore would violate regulations. Also, if you were to get Friday off, you must meet all mandatory formations (classes, TI notes, etc.) on Monday.

   NOTE: You are still responsible for the material covered in the course during the time you have taken off. In other words, if you earn a day off from class you must somehow get the material that was covered that day in class.

6. Day off from class and Squadron Details.
You may also earn an entire day off from class and squadron details on a Tuesday, Wednesday or Thursday. This privilege cost 25 Performance Credit Points. Buying this privilege also gets you out of those squadron details described above

under the squadron details privilege for the day you have off.

There are two special privileges which may be earned by your performance - that is the number of Performance Credit Points you earn - but which you do not actually have to buy, these are Letters of Recognition.

1. Letter of Recognition sent to new Commanding Officer.

   This special award will be given on the basis of performance in the course. If you earn an average of at least 40 Performance Credit Points per measurement or your average course performance is 90% or better - this special letter will be sent to the Commanding Officer at your new base, if you so desire.

2. Letter of Recognition sent to Parents.

   As with the Letter sent to your new Commanding Officer, this letter will be sent to your parents if you earn an average of 40 Points or better per measurement or if your average score is 90% or greater, and if you so desire.

   NOTE: If you get 40 Points per measurement or average 90% or greater, Letters will be sent to both your new Commanding Officer and your parents.

   These awards will not actually have to be bought. They will be sent automatically if your performance qualifies you to earn them and if you wish them to be sent.

OTHER TECH SCHOOL PERFORMANCE

Performance at tech school is determined not only by your grades and speed of finishing but also by the way you conduct yourself at tech school. For example, disrupting classes, poor attitudes, and gross lack of effort are indicators of poor overall performance. The system considers these aspects of performance in the following way. If one of your tech school instructors feels that your level of effort, attitudes, etc. are extremely poor he may, in consultation with the Course Supervisor, disqualify you from buying privileges for a specified period of time. This period of time will be at the discretion of the instructor, and will depend on the nature of the infraction. However, it will typically be for no longer than one week at a time.

During this time you will be unable to buy privileges even if you have the points to do so, and any privileges you have purchased for use during that suspension period may not be used. However, points you have paid out for that privilege will be refunded to you.

NOTE: This suspension of privileges does not mean that you actually lose points you have earned, but only that you can not use the points you have for privileges. Also, if your performance is high, you can continue to earn more points while you are under this suspension.

MILITARY PERFORMANCE

Your performance at Chanute as a member of the United States Air Force is determined not only by performance in tech school, but other aspects of military life as well. Poor performance in these military aspects will be considered by this system in a manner similar to that discussed above. Certain major infractions of Air Force regulations such as disobeying a direct order, repeatedly missing mandatory formations, going AWOL, using narcotics, assault, repeated poor personal appearance (haircuts, uniforms), missing class, missing driver's training, repeated poor attitudes, and other major infractions will result not only in the usual penalties under the Uniform Code of Military Justice, but will also result in you being unable to purchase privileges for a specified time. This penalty may be given by a military training instructor, in consultation with the Squadron Commander when they determine a major violation of regulations has occurred. The length of time an airman will not be permitted to buy privileges will also be at their discretion depending on the nature of the violation, but will typically be for one week.

NOTE: The Performance Credit Points you have earned cannot be taken away; but for this specified time period you will be unable to spend them. Furthermore, you can still earn more Performance Credit Points while under the restriction not to spend them.

MECHANICS OF THE SYSTEM

A few days after each Block Exam you take, you will be given a form stating how many Performance Credit Certificates you have.

To actually buy the privileges use the following procedure. Fill in the "Privilege Buying Form". A copy of this form is attached to the back of this manual. Additional copies of this form will be made available in the squadron area. To fill in the form, follow the directions given at the top of the form.

As the directions state, fill in the form and put it in an envelope. This envelope is then put in the box provided in the squadron area.

These envelopes will be picked up several times per week and two or three days later you will be given authorizaton slips for the privileges you have selected. You cannot actually use the earned privileges until you get an authorization slip. Do not lose these authorizations slips. They are the only means you have to show that you have earned the privilege.

Many of these authorization slips must be signed by one or more people (e.g., your tech school instructor) before they become valid. It is your responsibility to get them signed. The procedure for getting the various authorization slips signed is described on the authorization slips you will be getting. Follow this procedure carefully.

You can buy privileges, that is submit a Privilege Buying Form, as often as you wish. In other words, you can spend all your points at one time or spread them out, or even save them for as long as you wish.

EARNING DAYS OFF

Two of the privileges in the system deal with days off: the 72-

Hour Pass and the Day off from Class. If you have the points you are guaranteed to get the privilege except for the following restrictions:

1) You are not on Academic Probation.
2) You are not in Washback Status.
3) Your buying privileges have not been officially suspended.

Under NO other circumstances will you be UNABLE to get the time off.

ELIGIBILITY

All airmen in the 57th Squadron will participate in the system no matter what stage of the course they happen to be in. However, there is one exception to this. Points will not be given for the last block exam since you would be unable to spend them before you left the base.

QUESTIONS ABOUT THE SYSTEM

If you have any questions about the system, ask the supervisory personnel at the squadron area. They are familiar with the system If they do not know the answer to your question, call the Training Research Application Branch at the Base. The number is 3497. They will be able to answer your questions, or at least find out the answer in a day or so.

PRIVILEGE BUYING FORM

DIRECTIONS: Where appropriate, fill in the number of days, weeks, etc. you wish to have the privileges. Indicate the number of Performance Credit Points each costs and add them up at the bottom of the form. After filling in your Name and Soc. Sec. Number, fold the form and place it in an envelope with the correct number of Performance Credit Points. Put your Name and SS number, shift and school on the outside of the envelope and place the envelope in the box provided in the Squadron area.

** Remember to put your Name and SS number etc. on the outside of the envelope.

ELECTRICAL (AER) _____ WEATHER (WO) _____ A SHIFT _____ B SHIFT _____

SEPARATE RATION (SEP RAT) _____

1.	Permission to proceed to and from class individually. (4 Points per week)	Number of weeks desired _____ Dates (Monday through Friday only) From _____ to _____ Is this privilege being renewed? YES ____ NO ____	NUMBER OF POINTS USED _____
2.	Choice of Uniform (2 Points per week)	Number of weeks desired _____ Dates (Monday through Friday only) From _____ to _____	NUMBER OF POINTS USED _____
3.	Excused from Squadron Details (7 Points per week)	Number of weeks desired _____ Dates (Monday through Sunday) From _____ to _____ From _____ to _____	NUMBER OF POINTS USED _____
4.	Leaving Class 1 (one) hour early (7 Points)	Number of hours desired _____ Dates & Times: 1) _____ _____ 2) _____ _____	NUMBER OF POINTS USED _____
5.	Excused from Class 1 (one) day (25 Points)	Dates desired: 1) _____ 2) _____ 3) _____	NUMBER OF POINTS USED _____
6.	72-Hour Pass (30 Points)	1) _____ 2) _____ 3) _____	NUMBER OF POINTS USED _____

TOTAL NUMBER OF POINTS ENCLOSED: _____

NAME: _____

SOCIAL SECURITY NUMBER: ___ ___ ___ - ___ ___ - ___ ___ ___ ___

TODAY'S DATE: _____

LETTERS OF RECOGNITON

In order to be eligible students in the Weather Observer course must have an average of 92% or better for the first 12 weeks or have earned an average of 10 Points per measurement.

In order to be eligible students in the Electrical Repairmen Course must average 40 Points per Block or have an average of 90% or better through the first five blocks.

If Letter of Recogntion is requested to your next base please enclose 1 (one) copy of your order.

If you are in the last block of your course, fill in the parts below:

A. I wish to have a Letter of Recognition sent to my new Commanding Officer. _____YES _____NO

B. I wish to have a Letter of Recognition sent to my Parents. _____YES _____NO

PARENT'S NAME AND ADDRESS:

NAME: _____

ADDRESS: _____

_____

_____

Appendix T

Manual for Incentive System III

Note: The manual presented here is for the AER course only. The WX manual was similar except that no mention was made of points for speed of completing the course.

STUDENT MANUAL FOR CHANUTE PERFORMANCE CREDIT SYSTEM

AIRCRAFT ELECTRICAL REPAIRMEN (3ABR43330)

THIS MANUAL DESCRIBES HOW YOU CAN EARN SPECIAL PRIVILEGES BY YOUR PERFORMANCE AT TECHNICAL SCHOOL. READ IT - IT IS IMPORTANT TO YOU.

INTRODUCTION

As you may know Air Training Command has sponsored a group from Purdue University to do a project with the Aircraft Electrical Repairmen and Weather Observer courses at Chanute. The students in the 57th Student Squadron have been participating in the program.

THE PURPOSE OF THIS PROGRAM IS TO MAKE PERFORMING WELL IN YOUR TECH SCHOOL COURSES AS ATTRACTIVE AS POSSIBLE TO YOU.

To do this, we are making available to you certain special privileges which can be earned by good performance in tech school.

The following special privileges are included in the program:

1. Letter of Recognition -- sent to Commanding Officer at new base of assignment.
2. Letter of Recognition -- sent to parents.
3. Permission to proceed to and from class individually.
4. Being able to leave class earlier.
5. Getting a day off during the week.
6. Getting a 72-Hour Pass.
7. Wearing any uniform you choose to class.
8. Being excused from squadron details.

In addition to these above - you can also earn the following privileges:

1. Chits redeemable at BX facilities.
2. U.S. Savings Bonds.
3. Gift certificates for Sears Department Store.
4. Chits at the Airman's Club.
5. Free weekend roundtrip bus transportation to cities in the Midwest.
6. Free use of a car for a weekend.

EARNING THE SPECIAL PRIVILEGES

You earn these special privileges by your performance in the block exams given in the course. The better you do on these block exams (both speed of finishing the block and actual score) the more privileges you can earn.

Here's how the system works: Based on your performance on [illegible] exams, you will be given a number of Performance Credit Points. You might think of these Performance Credit Points as money that can be used to "buy" privileges. The more Points you earn, the more privileges you can get.

The number of Performance Credit Points you get depends on two things: (1) the score you get on the written block exams, and (2) the speed with which it takes you to finish the block. The higher your score and the faster you finish the block, the more Points you can earn.

You will earn two different kinds of Performance Credit Points: Base Privilege Points and Financial Privilege Points. These two kinds of points are used for different privileges. Base Privilege Points may be cashed in for the privilege of: (1) proceeding individually to and from class, (2) being able to leave class earlier, (3) getting a day off during the week, (4) getting a 72-Hour Pass, (5) wearing uniform you choose to class, and (6) being excused from squadron details. The Base Privilege Points can only be cashed in for these above privileges.

The Financial Privilege Points, on the other hand, may be cashed in for: (1) chits at the BX, (2) U.S. Savings Bonds, (3) gift certificate at Sears, (4) chits at the Airmen's Club, (5) free weekend bus transportation to cities in the Midwest, (6) free use of a car for a weekend or during a 72 Hour Pass. The Financial Privilege Points can only be cashed in for these privileges.

The first way to earn Base Privilege Points and Financial Privilege Points is by your actual scores on the block exams. You have been given a form which includes you name, AF number, and five "Exam Target Scores", one target score for each of the first five blocks of

he course. These target scores represent the block written exams scores you must beat to start earning Base Privilege and Financial Privilege Points. If you get better than that target score on a block written exam you earn points. For every point above the target score you get on a written block exam you get 2 (two) Base Privilege Points and 2 (two) Financial Privilege Points. For example, suppose Airman Smith had exam target scores like these:

Block	Target Score
Block I	83
Block II	85
Block III	84
Block IV	80
Block V	83

This would mean that if he got better than 83 on the Block I exam he would get points. If he got better than 85 on the Block II exam he would get points, better than 84 in Block III, and so on. Suppose he got an 89 on the Block I written exam. Since his target score was 83, and he gets 2 (two) Base Privilege Points and 2 (two) Financial Privilege Points for every percentage point above his target score, he would earn 12 (twelve) Base Privilege Points and 12 (twelve) Financial Privilege Points (89 - 83 = 6, 6 x 2 = 12). Suppose he got a 90 on the Block II exam. Since his target score was 85, he would be 5 points above it and thus get another 10 (ten) Base Privilege Points and 10 (ten) Financial Privilege Points. Suppose he got a score of 80 on the Block III exam. Since this is below his target score of 84 he would receive NO Base Privilege Points or Financial Privilege Points.

The second way to earn Base Privilege Points and Financial Privilege Points is by the speed with which you finish Blocks of the course. On the sheet you have been given you also have five "Time

Target Scores", one for each block. As with the Exam Target Scores, these are the times you must beat to get Base and Financial Privilege Points. For every hour you finish the Block faster than your time target score, you get 2 (two) Base Privilege Points and 2 (two) Financial Privilege Points. These Base and Financial Privilege Points are in addition to the Base and Financial Privilege Points you get for your actual Block exam score. For example, suppose the same Airman Smith described before had the following Time Target Scores.

Block	Time Target Scores
Block I	81 hours
Block II	53 hours
Block III	78 hours
Block IV	75 hours
Block V	82 hours

If he finished Block I in 76 hours he would have beaten his target time by 5 hours and thus get 10 (ten) Base Privilege Points and 10 (ten) Financial Privilege Points. If he finished that Block in 76 hours and got a score of 89 he would get an additional 12 (twelve) Base Privilege Points and 12 (twelve) Financial Privilege Points for beating his Exam Target Score of 83 and thus get a total of 22 Base Privilege Points (10 points for speed plus 12 points for exam score) for Block I and 22 Financial Privilege Points (10 points for speed plus 12 points for exam score) for Block I.

Suppose he finished Block II in 50 hours with an exam score of 83. He would get 6 (six) Base Privilege Points and 6 (six) Financial Privilege Points for beating his time target by three hours, but would get NO Base Privilege or Financial Privilege Points for his exam score since he was below his exam target score. (His exam score was 83 and his exam target score for Block II was 85). Suppose for Block III he finished in 80 hours with an exam score of 91.

e would get NO Base Privilege or Financial Privilege Points for speed since he took more time than his target score but he would get 14 Base Privilege Points and 14 Financial Privilege Points for beating his exam target score by 7 percentage points. (91 - 84 = 7).

Each airman in the 57th Squadron will have his own set of target scores. The target scores are based on measured academic achievement level. The higher your academic achievement level, the higher your target socres. The idea behind this is that it is easier for a high academic achievement student to get high scores on the exams and finish the blocks quickly and thus it is easier for him to get Points. In contrast, it is harder for the lower academic achievement student to get high scores and finish quickly and thus get Points. In the system here, all students will have an equal chance to get Points and therefore privileges, since academic achievement is taken into consideration.

POOR PERFORMANCE

As you know, block exams consist of both written and pprformance sections. For some blocks you get an actual percentage score for the performance section of the exam, while for other blocks you get a Satisfactory (S) or Unsatisfactory (U). You earn Base Privilege and Financial Privilege Points only for your score on written portion of the exam, but not on the performance section. However, you must at least pass the performance portion of the exam to be eligible for Base Privilege and Financial Privilege Points. In other words, any Base or Financial Privilege Points you have earned for your score on the written portion of the exam and for finishing early will be awarded only when and if you pass the performance section.

Furthermore, since both speed of finishing the course and actual scores on exams are important, certain conditions must be met to earn

Points. First, you cannot earn any Base and Financial Privilege Points for a Block if you take 5 days (30 hours) or more over your time target score to finish the Block. Thus, if Airman Smith took 105 hours to finish Block IV (time target score of 75 plus 30 hours) he would, of course, get NO Points for speed, but he would also get NO points for his score no matter how high his score was.

The second set of conditions deal with failing a Block. If you fail a Block exam and then re-take it after your time target score you get NO points for your score on the second try. Thus, if Airman Smith took the Block IV exam after 60 hours and failed it, then took it again after 85 hours, he would get NO points for his second score since 85 hours is over his time target score of 75 hours. Also, if he took the Block IV exam for the first time after 80 hours and failed it, he would get NO points for his score when he re-took the exam. However, there is one exception to this. If you fail a block exam before you exam target time and retake it before your target time you are eligible to get Points for the score you get on the second try. Thus, if Airman Smith took the Block IV exam after 50 hours and failed it, then re-took it after 70 hours, he would get Base and Financial Privilege Points for his score on the second try if his new score was over his target exam score.

BUYING PRIVILEGES

Once you have earned some Base Privilege Points and Financial Privilege Points you can use them to buy privileges. Most of the privileges you actually have to buy; that is, you must pay some of your points to get the privileges.

The first group of privileges may be bought with Base Privilege Points. These are described below along with how much they "cost":

1. Permission to proceed individually to and from class.

Buying this privilege means that for one week (Monday through Friday) you do not have to march to or from class. This privilege costs 4 (four) Base Privilege Points. It can be bought for as many weeks as you wish. If you buy this privilege, along with an authorization slip, you will receive a metal pin. This pin must be worn on the pocket of your uniform when you are walking. These pins must be returned at the end of your earned walking period. When this privilege is earned you are free to get to and from class on any schedule you choose provided you meet required formations. For example, a student on A shift could go from chow to the BX and then walk back to the barracks. He would, however, be required to get to TI notes on time.

2. Choice of Uniform for 1 (one) week.
Buying this privilege means that you may wear any Air Force approved uniform to class that you wish. In other words, you would not have to wear fatiques to class for one week if you bought this privilege. Choice of Uniform for one week costs 2 (two) Base Privilege Points. It can be bought for as many weeks as you wish. With this privilege you may also wear any uniform you wish to TI notes and other functions.

3. Being excused from squadron details for one week. This privilege costs 7 (seven) Base Privilege Points per week. Purchase of this privilege gets you out of the following squadron details:

a) CQ runner on weekends (separate rations personnel).

b) cutting grass

c) parades and retreats - although there is no guarantee that purchase of this privilege will get you out of parades and retreats, an attempt will be made to select only those troops who have not purchased this privilege.

4. Leaving class one hour early.
If this privilege is earned, you can leave class one hour earlier than usual. This privilege costs 7 (seven) Base Privilege Points. If you wish to buy more than one hour off, you may do so. This can be one hour off on different days, or several hours off on the same day.

5. 72-Hour Pass
You may earn a 72-Hour Pass over the weekend (Monday or Friday off). This privilege costs 30 Base Privilege Points. Military regulations say that you cannot have more than a 72-Hour Pass. Therefore, you could not, for example, get a 3-Day Pass over Friday, Saturday, and Sunday, and get the Thursday before the pass off as well. This would amount to a 96 hour pass and therefore would violate regulations. Also, if you were to get Friday off, you must meet all mandatory formations (classes, TI notes, etc.) on Monday.

NOTE: You are still responsible for the material covered in the course during the time you have taken off.

In other words, if you earn a day off from class you must somehow get the material that was covered that day in class.

6. Day off from class and Squadron Details.
You may also earn an entire day off from class and squadron details on a Tuesday, Wednesday or Thursday. This privilege costs 25 Base Privilege Points. Buying this privilege also gets you out of those squadron details described above under the squadron details privilege for the day you have off.

The privileges just described above can be purchased only with Base Privilege Points. The six privileges described below can be purchased only with Financial Privilege Points.

1. Chits for BX facilities
These chits are redeemable for merchandise and services at the following BX areas: Main Store, Short Stop Store, Outdoor Store, Barber Shop, Beauty Shop, Service Station (gas, oil, minor repairs, etc.), and the Pizzeria. These chits are in units of one dollar's worth of merchandise. They will be given in units of $3.00 and this $3.00 worth of merchandise costs 4 (four) Financial Privilege Points. You may buy as many $3.00 units of chits as you wish. For example, 8 Financial Privilege Points get you $6.00 in chits, 12 points gets you $9.00, and so on. As mentioned above, the chits are in $1.00 denominations. Thus, the 4 points will get you three chits worth one dollar each. When you want to buy something you must go to the charge desk at the BX area where you are buying the merchandise. Due to the paper work required, you will not be able to get change from the chits. Thus, you must spend the entire chit. For example, if you bought $2.50 worth of gas at the service station, you would give them two one dollar chits and 50 cents in cash. You could not give them three one dollar chits and get 50 cents change.

2. Free United States Savings Bonds.
You earn U.S. Savings Bonds. For 25 Financial Privilege Points you can get a $25.00 Savings Bond. You can cash that Bond in after 60 days and get $18.75 in cash, or keep the Bond and let the interest build up. You can buy as many $25.00 Savings Bonds as you wish.

3. Gift certificates redeemable at Sears Department Store.
These certificates are redeemable for merchandise at any Sears Department Store in the United States. This privilege can be purchased in units of $6.00 and this $6.00 gift certificate costs 8 (eight) Financial Privilege Points. You may purchase as many $6.00 gift certificates as you wish. To illustrate - for 16 Financial Privilege Points you can purchase a $12.00 gift certificate, for 24 Financial Privilege Points you can buy an $18.00 gift certificate, and so on. These gift certificates should be spent within 90 days.

4. Chits at the Airmen's Club.
Chits at the Airmen's Club can also be earned. This privilege will cost you 4 Financial Privilege Points and will entitle you to $3.00 worth of chits which can be spent at the Airmen's Club. You can purchase, in $3.00 blocks, as many of these certificates as you have Financial Privilege Points (e.g., 8 Points gives you $6.00 in chits, etc.)

5. Free round trip bus transportation.
You can get a free round-trip bus ticket from Rantoul to anywhere in the Midwest. These could be used to go places on weekends or for a 72-Hour Pass. The number of Financial Privilege Points this privilege costs depends on where you want to go. The more the bus ticket actually costs, the more points it will cost you. Each Financial Privilege Point is worth $.75 (seventy-five cents). To figure the number of points any ticket will cost you, call the Greyhound Bus Company in Rantoul and find out how much the ticket costs. Then divide that cost by .75 and that will tell you how many Financial Privilege Points the ticket will cost you. For example, if the ticket was $15.00, it would cost you 20 Financial Privilege Points ($15.00 ÷ .75 = 20). The number of points it will cost to go to several cities is listed below:

City	Number of Financial Privilege Points
Chicago	13 Points
Indianapolis	20 Points
St. Louis	22 Points

Remember that you must be back to the base when you are supposed to be. It is your responsibility to do this.

6. Free use of a car for the weekend.
You can obtain the use of a car (air-conditioned, 4-door sedan) for a weekend or 72-Hour Pass. This privilege costs 80 Financial Privilege Points. Any individual student can buy this privilege or a group of 5 or 6 can pool their points to obtain the car.
The car will be delivered to the 57th Squadron orderly room by a representative from Econocar of Champaign (901 S. Neil). You will then be required to take this representative back to Champaign. Once you have done this you are free to go anywhere you like so long as no more than 600 miles are driven for the weekend or 72-Hour Pass. Your first tank of gas, minus the gas required for the trip to and from Rantoul, is included in the privilege; additional gasoline must be purchased by the individual (s). You must return to Econocar and a representative will then drive you to Chanute AFB.
The car rental company insists that the person who drives the car and takes responsibility for it must be at least 21 years old. Thus, if you are not 21 yourself you must find someone to go along with you who is 21.
There has been some concern raised about this privilege from a safety point of view. Thus, if the privilege is abused (e.g., students don't return on time, someone has an accident, more than 600 miles are put on the car, etc.) this privilege

will have to be reconsidered and possibly cancelled for all.

IMPORTANT

Remember that there are two kinds of privileges - those that can be bought with Base Privilege Points (permission to proceed individually, leaving class early, day off, 72-Hour Pass, choice of uniform, and excusal from squadron details) and those that can be bought with Financial Privilege Points (Bx chits, U.S. Savings Bonds, Sears gift certificates, chits at the Airmen's Club, bus trips, and free use of a car). You can only buy Base Privileges with the Base Privilege Points and you can only buy Financial Privileges with the Financial Privilege Points. For example, if you had 30 Base Privilege Points and 30 Financial Privilege Points you could not put 10 of your Base Privilege Points with your 30 Financial Privilege Points and get a Sears gift certificate costing 40 Points.

There are two privileges which may be earned by your performance, that is, the number of Performance Credit Poitns you earn - but which you do not actually have to buy, these are Letters of Recognition.

1. Letter of Recognition sent to new Commanding Officer.

   This special award will be given on the basis of performance in the course. If you earn an average of at least 80 Points (Base Privilege Points plus Financial Privilege Points) per measurement OR your average course performance is 90% or better - this special letter will be sent to the Commanding Officer at your new base, if you so desire.

2. Letter of Recogntion sent to Parents.
   As with the Letter sent to your new Commanding Officer, this letter will be sent to your parents if you earn an average of 80 Points or better per measurement OR if your average score is 90% or greater, and if you so desire.

   NOTE: If you get 80 Points per measurement or average 90% or greater, Letters will be sent to both your new Commanding Officer and your parents.

   These awards will not actually have to be bought. They will be sent automatically if your performance qualifies you to earn them and if you wish them to be sent.

OTHER TECH SCHOOL PERFORMANCE

Performance at tech school is determined not only by your grades and speed of finishing but also by the way you conduct yourself at tech school. For example, disrupting classes, poor attitudes, and gross lack of effort are indicators of poor overall performance. The system considers these aspects o performance in the following way. If one of your tech school instructors feels that your level of effort, attitudes, etc. are extremely poor he may, in consultation with the Course Supervisor, disquality you from buying privileges for a specified period of time. This period of time will be at the discretion of the instructor, and will depend on the nature of the infraction. However, it will typically be for no longer than one week at a time. During this time you will be unable to buy privileges even if you have the points to do so. and any privileges you have purchased for use during that suspension period may not be used. However, points you have paid out for that privilege will be refunded to you.

NOTE: This suspension of privileges does not mean that you actually lose points you have earned, but only that you can not use the points you have for privileges. Also, if your performance is high, you can continue to earn more points while you are under this suspension.

MILITARY PERFORMANCE

Your performance at Chanute as a member of the United States Air Force is determined not only by performance in tech school, but other aspects of military life as well. Poor performance in these military aspects will be considered by this system in a manner similar to that discussed above. Certain major infractions of Air Force regulations such as disobeying a direct order, repeatedly missing mandatory formations, going AWOL, using narcotics, assault, repeated poor personal appearance (haircuts, uniforms), missing class, missing driver's training, repeated poor attitudes, and other major infractions will result

not only in the usual penalties under the Uniform Code of Military Justice, but will also result in you being unable to purchase privileges for a specified time. This penalty may be given by a military training instructor, in consultation with the Squadron Commander when they determine a major violation of regulations has occurred. The length of time an airman will not be permitted to buy privileges will also be at their discretion depending on the nature of the violation, but will typically be for one week.

NOTE: The Base Privilege and Financial Privilege Points you have earned cannot be taken away; but for this specified time period you will be unable to spend them. Furthermore, you can still earn more Base Privilege and Financial Privilege Points while under the restriction not to spend them.

MECHANICS OF THE SYSTEM

A few days after each Block Exam you take, you will be given a form stating both the number of Base Privilege Points and the number of Financial Privilege Points you have earned.

To actually buy the privileges use the following procedure. Fill in one or both of the buying forms: "Base Privilege Buying Form", and/or "Financial Privilege Buying Form". Copies of these forms are attached to the back of this manual. Additional copies of these forms will be made available in the squadron area. To fill in the forms, follow the directions given at the top of each form.

As the directions state, fill in the form and put it in an envelope. This envelope is them put in the box provided in the squadron area.

These envelopes will be picked up several times per week and two or three days later you will be given authorization slips for the privileges you have selected (for example, a 72-Hour Pass) or you will be given the actual privilege (e.g., BX chits). Do not lose these authorization slips. They are the only means you have to show that you have earned the privilege.

Some of these authorization slips must be signed by one or more people (e.g., your tech school instructor) before they become valid. It is your responsibility to get them signed. The procedure for getting the various authorization slips signed is described on the authorization slips you will be getting. Follow this procedure carefully.

You can buy privileges, that is submit a Base or Financial Privilege Buying Form, as often as you wish. In other words, you can spend all your points at one time or spread them out, or even save them for as long as you wish.

EARNING DAYS OFF

Two of the privileges in the system deal with days off: the 72-Hour Pass and the Day off from Class. If you have the Base Privilege Points you are guaranteed to get the privilege except for the following restrictions:

(1) You are not in Academic Probation.
(2) You are not in Washback Status.
(3) Your buying privileges have not been officially suspended.

Under NO other circumstances will you be UNABLE to get the time off.

ELIGIBILITY

All airmen in the 57th Squadron will participate in the system no matter what stage of the course they happen to be in. However, there is one exception to this. Points will not be given for the last block exam since you would be unable to spend them before you left the base.

QUESTIONS ABOUT THE SYSTEM

If you have any questions about the system, ask the supervisory personnel at the squadron area. They are familiar with the system. If they do not know the answer to your question, call the Training Research Application Branch at the Base. The number is 3497. They

will be able to answer your questions, or at least find out the answer in a day or so.

BASE PRIVILEGE BUYING FORM

DIRECTIONS: Where appropriate, fill in the number of days, weeks, etc., you wish to have the privileges. Indicate the number of Base Privilege Points each costs and add them up at the bottom of the form. After filling in your Name and Soc. Sec. Number, fold the form and place it in an envelope with the correct number of Base Privilege Points. Put your Name and SS number, shift and school on the outside of the envelope and place the envelope in the box provided in the Squadron area.

** Remember to put your Name and SS number etc., on the outside of the envelope.

ELECTRICAL (AER) _____ WEATHER (WO) _____ A SHIFT _____ B SHIFT _____

SEPARATE RATION (SEP RAT) _____

1.	Permission to proceed to and from class individually. (14 Base Points per week)	Number of weeks desired _____ Dates (Monday through Friday only) From _____ to _____ Is this privilege being renewed? YES ____ NO ____	NUMBER OF BASE PRIVILEGE POINTS USED _____
2.	Choice of Uniform (2 Base Points per week)	Number of weeks desired _____ Dates (Monday through Friday only) From _____ to _____	NUMBER OF BASE PRIVILEGE POINTS USED _____
3.	Excused from Squadron Details (7 Base Points per week)	Number of weeks desired _____ Dates (Monday through Sunday) From _____ to _____ From _____ to _____	NUMBER OF BASE PRIVILEGE POINTS USED _____
4.	Leaving Class 1 (one) hour early. (7 Base Points)	Number of hours desired _____ Dates & Times: 1) _____ _____ 2) _____ _____	NUMBER OF BASE PRIVILEGE POINTS USED _____
5.	Excused from Class 1 (one) day (25 Base Points)	Dates desired: 1) _____ 2) _____ 3) _____	NUMBER OF BASE PRIVILEGE POINTS USED _____
6.	72-Hour Pass (30 Base Points)	Dates desired: 1) _____ 2) _____ 3) _____	NUMBER OF BASE PRIVILEGE POINTS USED _____

TOTAL NUMBER OF BASE PRIVILEGE POINTS ENCLOSED: _____

NAME: _____

SOCIAL SECURITY NUMBER: ___ ___ ___ - ___ ___ - ___ ___ ___ ___

TODAY'S DATE: _____

FINANCIAL PRIVILEGE BUYING FORM

DIRECTIONS: Where appropriate, mark the number of the privileges you want. Indicate the number of Financial Privilege Points each costs and add them up at the bottom of the form. After filling in your Name and Soc. Sec. Number, fold the form and place it in an envelope with the correct number of Financial Privilege Points. Put your Name and SS number, shift and school on the outside of the envelope and place the envelope in the box provided in the Squadron area.

** Remember to put your Name and SS number etc., on the outside of the envelope.

ELECTRICAL (AER) _____ WEATHER (WO) _____ A SHIFT _____ B SHIFT _____

~~SEPARATE RATION (SEP RAT)~~ _____

1.	U.S. Savings Bond (25 Financial Points per $25.00 Bond)	Number of Bonds desired _____	NUMBER OF FINANCIAL POINTS USED _____
2.	Gift Certificate from BX (4 Financial Points for a Block of gift certificates worth $3.00)	Number of Blocks desired _____	NUMBER OF FINANCIAL POINTS USED _____
3.	Chits (tokens) from the Airmen's Club (4 Financial Points for a Block of Chits worth $3.00)	Number of Blocks desired _____	NUMBER OF FINANCIAL POINTS USED _____
4.	Gift Certificates from Sears Dept. Store (8 Financial Points for a $6.00 gift certificate)	Number of $6.00 gift certificates desired _____	NUMBER OF FINANCIAL POINTS USED _____
5.	Round-trip bus transportation (Rate of exchange: 1 (one) Financial Points is worth 75¢)	City or town desired _____ Cost of ticket: $_____	NUMBER OF FINANCIAL POINTS USED _____
6.	Automobile rental service (80 Financial Points per car)	Dates desired (Weekend or 72-Hour Pass ONLY) From _____ To _____	NUMBER OF FINANCIAL POINTS USED _____

**TOTAL NUMBER OF FINANCIAL PRIVILEGE POINTS ENCLOSED: _____

NAME: _____

SOCIAL SECURITY NUMBER: ___ ___ ___ - ___ ___ - ___ ___ ___ ___

TODAY'S DATE: _____

LETTERS OF RECOGNITION

In order to be eligible students in the Weather Observer course must have an average of 92% or better for the first 12 weeks or have earned an average of 20 Points (Base Privilege Points plus Financial Privilege Points) per measurement.

In order to be eligible students in the Electrical Repairmen course must average 80 Points (Base Privilege Points plus Financial Privilege Points) per Block or have an average of 90% or better through the first five blocks.

If Letter of Recognition is requested to your next base please enclose 1 (one) copy of your order.

If you are in the last block of your course, fill in the parts below:

A. I wish to have a Letter of Recognition sent to my new Commanding Officer. _____YES _____NO

B. I wish to have a Letter of Recognition sent to my Parents. _____YES _____NO

PARENT'S NAME AND ADDRESS:

NAME: _____

ADDRESS: _____

_____

_____

Appendix U

Part I: Goal Setting Questionnaire

Part II: Checks on the Manipulations

Part III: Equity Questionnaire

Note: The instruments presented here are those used for the AER course. WX instruments were similar except that items dealing with speed of course completion were not included.

STUDENT OPINION SURVEY (Electrical Course)

NAME _____

AF SERVICE NO. _____

DATE _____

This is a questionnaire that asks you to give your reactions and feelings to three different things: (1) the type and nature of goals you may set in the technical school; (2) your feelings about relationships between effort, performance, and the benefits you receive; and (3) the equity that you see in tech school.

Your answers will be kept in the strictest confidence. No one on this base, or any other place in the Air Froce, will ever see what you as an individual have expressed. This information will be used by Purdue University to aid in evaluating the effectiveness of Air Force Technical Training.

PART I: GOAL SETTING

This section of the questionnaire deals with goals and goal setting. The word goal can mean many things to different people. We are referring to goals as a general or specific level of performance that a person tries to reach. Some people set many different goals for themselves while others do not set goals at all. Furthermore, some people set very general goals such as "I'll try to do my best," while others set very specific goals such as "I'll try to get a 90% on the Block III exam."

We would like to know if you set goals; and if you do, how often you set them and what these goals are.

Please answer all the questions below as accurately as possible.

E

1) I set goals for my score on each block exam in the course: (circle one)

A) always
B) usually
C) sometimes
D) seldom
E) never

2) I set goals for how quickly I finish a block of the course: (circle one)

A) always
B) usually
C) sometimes
D) seldom
E) never

3) When I am given a block exam in the course: (circle one)

A) I set no particular goals
B) I just try to pass the block exam.
C) I try to do my best
D) I try to score between 75 - 92
E) I try to score between 93 - 100

4) When I am given a certain block of instruction, my goal about how quickly I try to complete it is:

A) I set no particular goals about when I will finish it
B) I try to finish it in the normal scheduled time
C) I try to beat the normal scheduled time by as much as I can.
D) I try to finish it 1 - 2 days early
E) I try to finish it 3 or more days early

5) The importance to me of the goals I set for my score on a block exam is:

A) this does not apply to me, I don't set goals
B) very unimportant to me that I make the goal
C) somewhat unimportant to me that I make the goal
D) neither important nor unimportant to me that I make the goal
E) somewhat important to me that I make the goal
F) very important to me that I make the goal

6) The importance to me of the goals I set for how soon I finish a block is:

A) this does not apply to me, I don't set goals
B) very unimportant to me that I make the goal
C) somewhat unimportant to me that I make the goal
D) neither important nor unimportant to me that I make the goal
E) somewhat important to me that I make the goal
F) very important to me that I make the goal

7) How much would you be willing to work to make a particular goal (score on block exam)?

A) this does not apply to me, I don't set goals
B) I would not work very much at all
C) I would work a little
D) I would work moderately hard
E) I would work quite hard
F) I would work extremely hard

8) How much would you be willing to work to meet a goal of finishing a block in the amount of time you had set as your goal.

A) this does not apply to me, I don't set goals
B) I would not work very much at all
C) I would work a little
D) I would work moderately hard
E) I would work quite hard
F) I would work extremely hard

9) How disappointed in yourself would you be if you did not make a particular goal (score on block exam) that you had set for yourself? (circle one)

A) this does not apply to me, I don't set goals
B) not disappointed at all
C) somewhat disappointed
D) moderately disappointed
E) quite disappointed
F) very disappointed

10) How disappointed in yourself would you be if you did not finish a block in the amount of time you had set as your goal?

A) this does not apply to me, I don't set goals
B) not disappointed at all
C) somewhat disappointed
D) moderately disappointed
E) quite disappointed
F) very disappointed

11) In your course what percent of the students do you try to beat?

_____ percent (Write in percent figure from 0% - 100%)

PART II: RELATIONSHIP BETWEEN EFFORT, PERFORMANCE, AND REWARD

This section of the questionnaire deals with different relationships between effort, performance , and rewards. The first questions deal with the degree to which you think effort is related to performance in tech school. In some situations, effort is highly related to performance in that the harder you try, the better your performance is. In other situations, how hard you try doesn't have much effect on how well you do. We would like to know what you feel the relationship is between your effort and your performance in tech school.

Below are questions which ask you to estimate the chances that you will have certain levels of performance. If you exert high, medium, or low amounts of effort. By high effort is meant 76% - 100% of your maximum possible effort; medium effort refers to 26% - 75% of your maximum possible effort; and low effort refers to 0% - 25% of your maximum possible effort.

Remember that if something is absolutely certain to happen, we say the chances that it will happen are 10 in 10. If it is absolutely certain that a thing will not happen, the chances are 0 in 10 of its happening. That is, there is no chance of its happening. In many cases the chances are somewhere between 0 and 10 out of ten.

SAMPLE

What are the chances in 10 of...

A. Passing the course if you effort is:

HIGH (76% - 100% of your maximum effort); 1 2 3 4 5 6 7 8 9 (10)

MED. (26% - 75% of your maximum effort): 1 2 3 4 5 6 (7) 8 9 10

LOW (0% - 25% of your maximum effort): 1 2 3 4 (5) 6 7 8 9 10

In the example above the person answering this question is saying that if he exerts high effort, the chances are 10 out of 10 that he will pass the course. But only 7 out of 10 if he exerts medium effort; and he has only 5 chances in 10 of passing the course if he exerts low effort.

E

WHAT ARE THE CHANCES IN 10 OF ...

1. Getting grades which put you in the top 25% of your class if your effort is:

   HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

2. Getting grades which put you in the middle of your class (middle 50%) if your effort is:

   HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

3. Getting grades which put you in the bottom 25% of your class if your effort is:

   HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

4. Being able to finish a particular block 3 days early if your effort is:

   HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

5. Being able to finish a particular block in the normal scheduled time if your effort is:

   HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

   LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

6. Finishing a particular block 3 days late if your effort is:

HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

The second set of questions deal with the relationship you see between level of effort and receiving rewards, benefits, and privileges at tech school. By the terms "rewards, benefits, and privileges" we are referring to such things as the pay you receive, the training that you receive in the technical school that may be of later assistance in civilian life, gaining the respect of your fellow students for performance in the school, a sense of self-accomplishment, 3-Day Passes, and so on.

WHAT ARE THE CHANCES IN 10 OF ...

7 Getting a large number of rewards, benefits, and privileges if your effort is:

HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

8. Getting a medium number of rewards, benefits, and privileges if your effort is:

HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

9. Getting a small number of rewards, benefits, and privileges if your effort is:

HIGH (76% - 100% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (26% - 75% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (0% - 25% of your maximum effort): 1 2 3 4 5 6 7 8 9 10 (circle a number)

The third set of questions deal with the relationship you see between your level of performance and the rewards, benefits, and privileges you receive.

WHAT ARE THE CHANCES IN 10 OF ...

10. Getting a high level of rewards if your grades are:

HIGH (top 25% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (middle 50% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (bottom 25% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

11. Getting an intermediate level of rewards if your grades are:

HIGH (top 25% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (middle 50% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (bottom 25% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

12. Getting a low level of rewards if your grades are:

HIGH (top 25% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

MED (middle 50% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

LOW (bottom 25% of your class): 1 2 3 4 5 6 7 8 9 10 (circle a number)

13. Getting a high level of rewards if you finish blocks of the course:

Earlier than the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

At the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

Later than the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

14. Getting an intermediate level of rewards if you finish blocks of the course:

Earlier than the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

At the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

Later than the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

15. Getting a low level of rewards if you finish blocks of the course:

Earlier than the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

At the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

Later than the normal standard time: 1 2 3 4 5 6 7 8 9 10 (circle a number)

PART III: FEELINGS OF FAIRNESS

The last section of the questionnaire deals with how fair you feel things are in the technical school. Several of the questions deal with the rewards, benefits, and privileges available to students on the base. These questions ask you to state what percent of these rewards, benefits, and privileges you or other students receive. Note that the questions do not ask how many rewards, benefits, and privileges are available, but how much you or others get from those that actually are available. For example, you may feel that the amount of rewards, benefits, and privileges is very low, but you get all of them that are available.

As with the previous section, rewards, benefits, and privileges refer to things like pay, training you get, feelings of accomplishment, 3-day passes, etc.

1) When I consider all the possible rewards, benefits, and privileges available to students at Chanute, I would say that I am actually receiving _____ percent (place percent figure from 0 to 100) of these rewards, benefits, and privileges.

2) When I consider all the possible rewards, benefits, and privileges available at Chanute, I would say that my fellow students are actually receiving _____ percent of these rewards, benefits, and privileges.

3) I can honestly say that I am putting in _____ percent of my energy, talents, and abilities into my job as a student at Chanute.

4) I can honestly say that my fellow students in this squadron are putting in _____ percent of their energy, talents, and abilities into their jobs as students at Chanute.

5) When I consider how much of my energy, talents, and abilities I put into my job as a student in this squadron at Chanute, I would say that the rewards, benefits, and privileges that I get are: (circle one)

A) far too small

B) slightly too small

C) about right

D) slightly too much

E) far too much

6) When I consider how much of their energy, talents, and abilities the students in this squadron are putting into their jobs at Chanute, I would say that the rewards, benefits, and privileges that they get are:

A) far too small

B) slightly too small

C) about right

D) slightly too much

E) far too much

7) There are students in this squadron who get too many rewards, benefits, and privileges for what they put into their jobs as students.

A) strongly agree

B) agree

C) neutral

D) disagree

E) strongly disagree

8) There are students in this squadron who do not get enough rewards, benefits, and privileges for what they put into their job as students.

A) strongly agree

B) agree

C) neutral

D) disagree

E) strongly disagree

Appendix V

Item Statistics on Checks on Manipulations

(For actual items see Appendix U Part II)

Appendix V. Checks on Manipulations (Expectancy-Valence Items): AER

Item	Haw. (N=41) $\bar{X}$	Haw. (N=41) σ	Trt 1(N=25) $\bar{X}$	Trt 1(N=25) σ	Trt 2(N=31) $\bar{X}$	Trt 2(N=31) σ	Trt 3(N=175) $\bar{X}$	Trt 3(N=175) σ
1a	8.9	1.8	9.4	1.0	8.2	2.2	8.4	1.9
1b	6.8	1.9	6.8	1.2	6.5	1.8	6.7	1.8
1c	4.2	2.5	4.7	2.4	4.5	2.2	4.1	2.3
2a	7.9	2.8	8.0	2.5	7.8	2.5	7.9	2.2
2b	6.6	2.7	7.5	1.8	6.5	2.0	6.7	1.9
2c	4.4	2.8	6.3	1.8	5.2	2.4	4.5	2.4
3a	4.9	3.7	5.8	4.0	3.3	3.7	5.2	3.5
3b	5.0	3.4	5.3	3.0	4.9	2.9	5.0	2.9
3c	5.1	3.9	5.5	3.3	4.9	3.3	4.9	3.4
4a	9.2	1.7	9.2	1.2	8.5	1.7	8.5	2.0
4b	7.1	2.3	7.5	1.7	7.0	1.7	6.8	1.8
4c	5.1	2.7	5.7	2.5	5.1	2.3	4.5	2.4
5a	9.0	1.7	8.8	2.4	8.8	1.8	8.1	2.2
5b	7.6	2.2	8.1	2.1	7.6	1.8	6.9	2.0
5c	5.6	2.5	5.8	2.7	5.7	2.5	4.9	2.4
6a	4.5	3.6	5.4	4.1	3.9	3.1	5.1	3.3
6b	4.5	3.0	6.4	3.0	4.3	2.3	5.1	2.5
6c	4.8	3.4	6.0	3.0	5.2	3.2	5.1	32.
7a	9.2	2.1	8.9	2.1	8.3	2.1	8.6	2.0
7b	5.8	2.2	7.1	2.3	6.5	1.6	6.8	1.8
7c	3.8	2.3	4.5	2.8	4.8	1.8	4.6	2.4
8a	7.3	2.4	8.2	2.2	7.9	1.9	7.5	2.4
8b	5.8	2.4	7.2	2.0	6.1	1.4	6.4	2.1
8c	3.9	2.2	5.7	2.6	4.3	1.7	4.6	2.4
9a	6.1	3.4	7.0	3.5	5.7	3.2	6.2	3.1
9b	5.3	2.9	6.7	2.6	5.0	2.3	5.6	2.4
9c	4.2	3.1	5.6	3.1	4.6	2.4	5.1	3.0
10a	8.0	2.4	9.0	2.0	7.9	1.9	8.3	2.1
10b	6.1	2.1	6.4	2.0	6.4	1.6	6.5	1.9
10c	3.9	2.5	4.6	2.9	4.6	2.1	4.5	2.3
11a	7.4	2.6	8.6	2.2	7.6	2.0	7.6	2.2
11b	6.3	2.3	7.0	2.0	6.1	1.8	6.4	1.9
11c	4.7	2.5	4.6	2.8	5.0	2.0	4.5	2.3
12a	6.6	3.5	6.5	3.5	5.1	3.2	5.7	3.1
12b	5.6	2.7	6.4	2.1	5.2	2.3	5.3	2.2
12c	4.7	2.9	6.2	2.9	4.7	2.7	5.0	2.9
13a	7.6	2.9	9.1	1.8	8.4	2.0	8.4	2.2
13b	5.7	2.7	6.3	2.1	6.7	1.9	6.0	2.1
13c	3.6	2.6	3.5	2.6	4.5	2.2	4.0	2.4
14a	7.2	3.0	8.8	1.8	7.4	2.1	7.6	2.2
14b	5.8	2.7	6.4	2.3	6.1	1.9	6.1	2.1
14c	3.9	2.7	3.5	2.7	4.5	2.0	4.1	2.3
15a	6.2	3.3	6.0	4.0	6.7	3.1	6.1	3.1
15b	5.5	2.8	5.5	2.5	4.8	2.8	5.3	23.
15c	4.3	3.1	5.0	3.2	4.2	2.7	4.8	2.8

Appendix V (Cont.). Checks on Manipulations (Expectancy-Valence Items): WX

	Haw. (N=48)		Trt 1(N=50)		Trt 2(N=39)		Trt 3(N=24)	
Item	$\bar{X}$		$\bar{X}$		$\bar{X}$		$\bar{X}$	
1a	9.3	1.7	9.2	1.2	8.9	2.2	9.3	1.1
1b	7.0	2.4	7.1	1.8	6.8	2.0	7.6	1.8
1c	4.6	2.6	4.7	2.5	4.2	2.5	5.2	2.5
2a	6.7	3.6	6.8	3.2	8.0	3.0	7.5	2.9
2b	6.4	2.9	6.6	2.7	7.4	2.2	6.8	2.0
2c	5.2	2.7	5.3	2.6	6.2	2.9	5.6	2.6
3a	3.8	3.8	4.2	3.7	6.9	4.2	4.7	3.4
3b	4.4	3.4	4.5	3.3	7.0	3.6	5.3	2.8
3c	5.9	3.6	5.2	3.5	6.8	3.7	6.0	3.2
4a	6.9	3.7	8.9	1.8	8.7	2.3	8.8	1.7
4b	5.0	2.8	7.0	1.9	6.6	1.9	6.8	1.7
4c	3.2	2.3	4.4	2.2	4.5	2.7	4.5	2.5
5a	6.5	3.4	7.6	2.5	7.5	2.9	7.9	1.9
5b	5.7	2.8	6.6	2.4	6.9	2.4	6.6	1.7
5c	3.7	2.4	4.7	2.5	5.4	2.8	4.7	2.8
6a	5.9	3.9	6.0	3.8	6.5	4.1	6.1	3.4
6b	5.4	3.1	5.7	3.1	6.5	3.2	6.0	2.6
6c	4.4	3.3	5.5	3.3	5.6	3.4	6.0	3.1
7a	6.5	3.7	9.2	1.3	8.9	2.6	9.0	1.3
7b	6.2	2.5	6.3	1.7	6.5	2.2	6.3	1.7
7c	2.1	1.7	3.7	2.2	3.7	2.6	3.6	2.3
8a	6.5	3.5	7.9	2.4	7.6	2.5	8.1	1.7
8b	5.0	2.8	7.0	2.2	6.3	2.1	6.5	1.4
8c	2.6	2.0	4.5	2.2	5.0	3.0	6.2	1.9
9a	6.1	3.7	5.7	3.9	6.3	3.6	6.0	2.9
9b	5.5	2.6	6.2	3.0	6.1	2.8	5.9	2.3
9c	4.9	3.4	6.4	3.1	5.8	5.3	5.3	3.0

Appendix W

Item Statistics on Overall Air Force Items

Appendix W . Means and Standard Deviations for Items on Overall Air Force Scale, by Course and Condition

Weather Students

Item No.*	Scoring	B(N=131)		H(N=55)		1(N=148)		2(N=101)		3(N=33)	
		$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
6	+	1.4	.73	1.6	81	1.7	.87	2.0	1.05	2.0	1.02
8	+	1.6	.84	2.1	1.02	2.0	.90	2.5	1.04	2.5	1.06
10	+	2.3	1.01	2.5	1.12	2.5	1.02	2.9	1.02	3.1	.91
23	+	2.0	.95	2.1	1.00	2.3	1.12	2.6	1.19	2.8	1.06
29	-	3.2	1.38	3.0	1.24	2.9	1.24	2.6	1.20	2.7	1.38
37	+	3.4	1.05	3.4	1.05	3.5	1.02	3.9	.90	3.9	.89
42	+	2.9	1.32	3.1	1.26	3.3	1.11	3.7	1.07	3.7	1.28
43	+	2.2	1.19	2.5	1.26	2.8	1.10	2.8	1.01	2.4	1.09
44	-	3.2	1.29	2.9	1.22	2.8	1.24	2.4	1.13	2.6	1.43
46	-	3.6	1.15	3.4	1.19	3.4	1.03	3.0	1.05	2.7	1.16
48	-	3.8	1.16	4.1	.96	3.6	1.04	3.3	1.16	3.3	1.36

Electrical Students

		B(N=116)		H(N=150)		1(N=135)		2(N=95)		3(N=103)	
		$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
6	+	2.1	1.08	2.1	1.05	2.2	1.11	2.4	1.13	2.5	1.19
8	+	2.8	1.13	2.9	1.09	2.7	.96	2.8	.97	3.0	1.05
10	+	2.9	1.19	3.0	1.13	2.9	1.08	3.1	1.07	3.3	1.00
23	+	2.7	1.16	2.7	1.15	2.4	1.08	2.8	1.08	3.2	.95
29	-	2.6	1.28	2.4	1.18	2.8	1.24	2.6	1.25	2.5	1.11
37	+	4.0	.99	4.0	.91	4.0	.76	3.9	.79	3.9	.76
42	+	3.6	1.07	3.7	.97	3.6	1.01	3.8	1.02	3.9	1.05
43	+	2.9	1.10	3.0	1.13	2.9	1.11	3.0	1.13	3.2	1.08
44	-	2.8	1.24	2.7	1.12	2.7	1.08	2.7	1.03	2.7	1.01
46	-	3.1	1.19	3.0	1.14	3.4	1.13	3.2	1.10	3.0	1.07
48	-	3.6	1.13	3.4	1.19	3.5	1.10	3.5	.89	3.3	.96

*Item numbers refer to items on Student Opinion Questionnaire (Appendix M). Note that some items are worded in the negative so that a low value indicates positive attitude.

Appendix X

Item Statistics on Course Evaluation Items

Appendix X . Means and Standard Deviations for Course Evaluation Items, WX

Item No.*	Scoring	B(N=132) $\bar{X}$		H(N=55) $\bar{X}$		1(N=147) $\bar{X}$		2(N=100) $\bar{X}$		3(N=33) $\bar{X}$	
1	+	3.7	.8	3.8	.8	3.8	.8	3.8	.9	3.9	.9
2	+	3.4	1.0	3.3	1.0	3.2	1.1	3.7	1.1	3.8	1.2
3	-	3.2	1.1	2.9	1.1	2.6	1.0	2.4	.9	2.2	.9
4	-	2.6	.9	2.5	.9	2.5	.9	2.4	.9	2.4	1.0
5	+	4.0	.7	4.0	.7	4.0	.7	4.0	.9	4.0	1.3
7	+	2.7	1.0	2.6	1.1	2.7	1.1	2.9	1.1	3.2	1.2
9	+	2.4	.9	2.5	.9	2.6	1.0	2.7	.9	2.8	1.0
12	+	2.7	.8	2.7	.8	2.5	.8	2.5	.8	2.4	.9
13	+	3.1	.9	3.2	.8	3.1	.9	3.4	.9	3.5	1.0
14	-	3.3	.7	2.5	.7	2.4	.9	2.4	.9	2.2	.7
16	+	3.3	.8	3.6	.8	3.5	.8	3.6	.8	3.7	.7
18	-	3.4	1.1	3.6	.9	3.6	1.1	3.6	1.1	3.4	1.4
20	-	2.0	.6	2.1	.5	2.2	.8	2.1	.8	2.0	1.0
21	+	3.2	1.1	3.2	1.1	3.1	1.1	3.0	1.1	3.2	1.2
22	+	2.2	1.2	2.6	1.2	2.8	1.2	2.5	1.2	3.2	1.1
26	+	3.8	.7	3.9	.5	3.7	.9	3.7	.9	3.8	1.0
27	+	3.2	1.0	3.3	.9	3.3	1.0	3.3	1.0	3.3	1.1
28	+	3.6	.8	3.7	.7	3.6	.8	3.6	.9	3.7	.8
31	-	3.3	1.0	3.4	.8	3.4	.9	3.3	1.0	3.4	1.0
33	+	3.4	.6	3.7	.7	3.8	.6	3.8	.7	3.9	.6
34	+	3.5	.9	3.6	.9	3.3	1.0	3.3	1.1	3.5	1.0
35	+	2.4	1.1	2.7	1.2	3.0	1.1	2.9	1.2	3.3	1.0
39	-	2.3	.9	2.6	1.0	2.5	1.0	2.6	1.1	2.6	1.0
40	-	2.2	1.0	2.3	1.0	2.2	.9	2.4	1.0	2.4	1.1
41	-	2.6	1.0	2.4	.8	2.7	1.0	2.7	1.0	2.7	1.1
45	+	3.6	.7	3.7	.7	3.7	.7	3.6	.8	3.8	.7
47	+	3.7	.7	3.8	.5	3.5	.8	3.5	.9	3.5	.9

*Item No. from Appendix M.

Appendix X (Cont.) Means and Standard Deviation

for Course Evaluation Items: AER

Item No.	Scoring	Base (N=115) $\bar{X}$	Base (N=115) σ	Hawth. (N=149) $\bar{X}$	Hawth. (N=149) σ	Trt 1 (N=135) $\bar{X}$	Trt 1 (N=135) σ	Trt 2 (N=95) $\bar{X}$	Trt 2 (N=95) σ	Trt 3 (N=103) $\bar{X}$	Trt 3 (N=103) σ
1	+	3.6	.7	3.6	.8	3.7	.8	3.6	.7	3.6	.7
2	+	3.8	.8	3.9	.8	4.0	.7	3.8	.9	3.8	.8
3	-	3.4	1.2	3.4	1.1	3.7	1.0	3.4	1.0	3.0	1.0
4	-	2.9	.9	2.9	.9	2.9	.9	2.9	.8	2.9	.8
5	+	4.2	.8	4.2	.8	4.3	.6	4.1	.8	4.0	.7
7	+	3.5	1.0	3.6	.9	3.4	1.0	3.5	1.1	3.6	.9
9	+	3.3	.9	3.3	.9	3.2	1.0	3.3	1.0	3.4	.9
12	+	2.6	.9	2.7	.9	2.6	.9	2.7	.9	2.8	.9
13	+	2.9	.8	3.0	.8	3.0	.9	3.1	.7	3.1	.7
14	-	2.7	.8	2.6	.8	2.7	.9	3.0	1.0	3.1	.9
16	+	4.0	.7	4.1	.6	4.0	.6	3.9	.6	3.9	.6
18	-	3.0	1.1	2.9	1.1	3.5	1.1	3.5	1.1	3.4	1.1
20	-	2.2	.8	2.3	.9	2.2	.9	2.5	1.0	2.5	.9
21	+	3.1	1.1	3.3	1.0	3.4	1.0	3.4	.9	3.5	.8
22	+	3.8	.7	3.7	.8	3.4	1.1	3.3	1.1	3.6	.9
26	+	4.0	.6	4.1	.6	4.2	.7	4.0	.9	3.9	.7
27	+	3.7	.8	3.7	.8	3.9	.8	3.7	.8	3.7	.7
28	+	3.5	.8	3.6	.7	3.8	.7	3.6	.9	3.6	.7
31	-	3.1	.9	3.1	.9	3.1	1.0	3.2	.7	3.1	.9
33	+	4.1	.4	4.1	.5	4.0	.6	3.9	.8	3.9	.6
34	+	3.7	.8	3.7	.7	3.7	.8	3.6	.9	3.6	.8
35	+	3.8	.7	3.9	.6	3.3	1.1	3.4	1.0	3.6	.8
39	-	3.0	1.1	2.8	1.1	2.8	1.0	3.0	1.2	3.1	.9
40	-	3.2	1.1	3.0	1.1	2.8	1.2	3.1	.9	3.1	1.0
41	-	2.8	.8	2.6	.7	2.4	.8	2.8	.7	2.8	.8
45	+	3.5	.8	3.6	.7	3.7	.7	3.6	.6	3.6	.8
47	+	3.7	.6	3.8	.6	3.9	.6	3.8	.6	3.8	.6

Appendix Y

Item Statistics on Job Satisfaction Items

(For actual items see Appendix N)

Appendix Y . Means and Standard Deviations for Job Satisfaction Questionnaire (Training Satisfaction Questionnaire, Appendix N).

WEATHER STUDENTS

	B(N=117)		H(N=15)		1(N=81)		2(N=80)		3(N=21)	
Item No.	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
1	3.1	1.1	3.2	.9	3.2	1.0	3.1	1.0	3.0	1.1
2	3.3	1.0	3.0	1.3	3.3	1.0	3.3	.9	3.3	1.2
3	3.1	1.1	3.1	1.2	3.4	1.1	3.4	.9	3.4	1.2
4	2.7	1.0	2.9	1.0	3.1	1.2	3.2	.9	3.1	1.2
5	3.6	.8	3.8	.7	3.7	.9	3.6	.9	3.3	1.2
6	3.6	.9	4.1	.8	3.9	.8	3.8	.8	3.3	1.1
7	3.2	1.1	2.9	1.1	3.4	1.1	3.5	.9	3.4	1.3
8	3.4	1.1	3.4	.9	34.	1.0	3.7	.9	3.6	1.3
9	3.1	.9	3.0	1.1	3.6	.9	3.5	.9	3.8	1.0
10	2.9	.8	2.9	1.2	3.0	1.0	3.3	.8	2.7	1.0
11	2.5	1.0	2.6	1.5	2.8	1.1	3.0	1.1	2.8	1.1
12	2.6	1.3	3.0	1.5	3.2	1.2	3.5	1.0	3.4	1.4
13	2.0	1.0	1.6	.9	2.2	.9	2.5	1.1	2.4	1.0
14	1.8	.9	1.8	.9	3.2	1.0	3.4	.9	3.3	1.1
15	3.2	1.0	3.5	.6	3.1	1.0	3.5	.9	3.3	1.3
16	2.2	1.1	2.5	1.3	2.6	1.2	2.9	1.1	2.8	1.3
17	3.2	.9	3.1	1.0	3.3	.9	3.3	.8	3.2	1.1
18	2.6	.9	3.3	.7	2.8	1.0	3.0	.9	2.8	.0
19	2.7	1.1	2.9	1.3	3.0	1.1	3.0	1.1	2.9	1.0
20	4.0	.7	3.9	.7	3.7	.8	3.8	.7	3.6	.0
21	3.0	.9	3.1	.9	3.1	.9	3.2	.8	3.1	1.0
22	3.3	1.1	3.4	1.1	3.8	1.0	3.7	.9	3.8	1.1

Appendix Y (Cont.): ELECTRICAL STUDENTS

Item No.	B(N=32) $\bar{X}$	B(N=32) σ	H(N=67) $\bar{X}$	H(N=67) σ	1(N=81) $\bar{X}$	1(N=81) σ	2(N=44) $\bar{X}$	2(N=44) σ	3(N=7) $\bar{X}$	3(N=7) σ
1	3.3	.8	3.5	.9	3.6	.8	3.4	1.0	3.6	.5
2	3.8	.6	3.6	.8	3.7	.9	3.6	.8	3.7	.5
3	3.7	.6	3.7	1.0	3.5	.9	3.5	1.0	3.9	.4
4	3.4	.8	3.6	1.0	3.4	.9	3.3	1.0	3.9	.4
5	3.7	.8	3.7	.0	3.6	.9	3.3	.9	3.6	1.0
6	3.9	.6	3.8	.0	4.0	.7	3.7	.9	4.0	.6
7	3.5	.9	3.5	1.0	3.6	.9	3.7	.8	3.7	.5
8	3.5	.7	3.6	.9	3.6	1.0	3.6	.8	3.7	.5
9	3.8	.6	3.7	.8	3.6	.7	3.9	.6	3.9	.9
10	3.1	.8	3.2	.8	3.0	.9	3.1	.8	3.3	.8
11	3.1	.9	3.1	.8	3.3	1.1	3.2	.8	3.0	1.2
12	3.5	1.1	3.8	1.0	3.6	1.1	3.6	1.0	3.9	.4
13	2.7	1.0	2.8	1.1	2.7	1.2	2.6	1.1	3.1	.7
14	1.8	.8	2.0	1.1	3.4	.9	3.5	.8	3.6	.8
15	3.4	.9	3.5	.9	3.6	.9	3.5	1.0	3.7	.5
16	3.0	1.0	2.9	1.2	2.9	1.2	3.2	1.2	3.4	1.1
17	3.8	.7	3.7	.6	3.5	.8	3.3	1.1	3.7	.5
18	3.3	.8	3.3	.9	3.3	.9	3.4	.8	3.3	.5
19	3.5	.8	3.2	.8	3.5	.8	3.4	.9	3.7	.5
20	3.5	.7	3.7	.8	3.8	.8	3.7	.8	3.3	1.0
21	3.4	.7	3.4	.9	3.4	.8	3.3	1.0	3.4	.8
22	3.8	.7	3.9	1.0	4.1	.8	4.0	.9	3.6	1.1

Appendix Z

Treatment Evaluation Questionnaires:

Students and Instructors

Chanute Incentive System Evaluation Questionnaire (Students)

Date:_____ Sex: _____M _____F

Check One: _____ Electrical Student _____ Weather Instructor

_____ Weather Student _____ Student Squadron MTI

_____ Electrical Instructor

In order for us to evaluate your reactions to the incentive system you have been in for the last 2 months, please answer the following questions. Circle one of the five alternatives:

SD I strongly disagree with the statement

D I disagree with the statement

N Neutral - I don't agree or disagree

A I agree with the statement

SA I strongly agree with the statement

	SD	D	N	A	SA
1. Giving students extra incentives is unnecessary; they should be expected to put out 100% effort without incentives.	___	___	___	___	___
2. The incentive system is having a positive effect on instructor morale.	___	___	___	___	___
3. The incentive system is having a positive effect on student morale.	___	___	___	___	___
4. Since the beginning of the incentive system overall student motivation has increased.	___	___	___	___	___
5. The incentive system creates more problems for instructors than it solves.	___	___	___	___	___
I believe that some sort of negative incentives should be given along with the positive incentives.	___	___	___	___	___
I believe that the privileges are too easy to earn.	___	___	___	___	___

S

	SD	D	N	A	SA
8. Many incentives that the program employs seem to be rather trivial.	___	___	___	___	___
9. I think students' interest and enthusiasm for the program has dropped off.	___	___	___	___	___
10. I feel that effort as well as performance should be rewarded by points.	___	___	___	___	___
11. An incentive system such as this should also give privileges to instructors.	___	___	___	___	___
12. (Electrical ONLY for this question.) The program places too much emphasis on speed and not enough emphasis on quality of performance.	___	___	___	___	___
13. There is more pressure on the students since the incentive program began than before.	___	___	___	___	___
14. I feel that the incentive program manipulates me.	___	___	___	___	___
15. There are too many restrictions on the incentives.	___	___	___	___	___
16. I would like the incentive program to continue.	___	___	___	___	___
17. The squadron has too much control over the incentive program.	___	___	___	___	___
18. The instructors have too much control over the incentive program.	___	___	___	___	___
19. Some people are abusing their privileges.	___	___	___	___	___
20. There is too much paper work involved in getting the actual incentives.	___	___	___	___	___
21. I feel that the incentive program is degrading.	___	___	___	___	___
22. The incentive program is just another military form of harrassment.	___	___	___	___	___
23. I feel that the incentive program is fair and that everyone has an equal opportunity to get the points for the incentives.	___	___	___	___	___
24. There is too much delay in getting the actual incentives.	___	___	___	___	___

S

	SD	D	N	A	SA
25. I think that an incentive program like this should be available to other squadrons.	___	___	___	___	___
26. I think the incentive program would work better if it were given more support by the squadron supervisors.	___	___	___	___	___
27. I think that students are working harder to get good grades than they would have if there was no incentive program.	___	___	___	___	___
28. I think that I can earn more points in this program if I work harder.	___	___	___	___	___
29. I believe the instructors are glad students are able to get rewards for doing well in their course work.	___	___	___	___	___
30. I think there is an unnecessary delay on the part of the instructors in reporting the grades.	___	___	___	___	___
31. Overall I think the program is a good one for the Air Force.	___	___	___	___	___

32. What are the good points of the incentive program?

_____

_____

_____

_____

_____

33. What are the bad points of the incentive program?

_____

_____

_____

_____

_____

34. General Comments:

I

Chanute Incentive System Evaluation Questionnaire (Instructors)

Date: _____ Sex: _____ M _____ F

Check One: _____ Electrical Student _____ Weather Instructor

_____ Weather Student _____ Student Squadron MTI

_____ Electrical Instructor

In order for us to evaluate your reactions to the incentive system you have been under for the last 2 months, please answer the following questions.

Circle one of the five alternatives:

SD I strongly disagree with the statement

D I disagree with the statement

N Neutral - I don't agree or disagree with the statement

A I agree with the statement

SA I strongly agree with the statement

	SD	D	N	A	SA
1. Giving students extra incentives is unnecessary; they should be expected to put out 100% effort without incentives.	___	___	___	___	___
2. The incentive system is having a positive effect on instructor morale.	___	___	___	___	___
3. The incentive system is having a positive effect on student morale.	___	___	___	___	___
4. Since the beginning of the incentive system overall student motivation has increased	___	___	___	___	___
5. The incentive system creates more problems for the instructors than it solves.	___	___	___	___	___
6. I believe that some sort of negative incentives should be given along with the positive incentives.	___	___	___	___	___
7. I believe that the privileges are too easy to earn.	___	___	___	___	___

	SD	D	N	A	SA
8. Many incentives that the program employs seem to be rather trivial.	___	___	___	___	___
9. From my viewpoint the mechanics of the program are too cumbersome.	___	___	___	___	___
10. I don't feel that the extra time the program requires of me is worth it.	___	___	___	___	___
11. I feel that the questionnaires the instructors answer are valuable.	___	___	___	___	___
12 I think students' interest and enthusiasm for the program has decreased.	___	___	___	___	___
13. I feel that effort as well as performance should be rewarded by points.	___	___	___	___	___
14. An incentive system such as this should also give privileges to instructors.	___	___	___	___	___
15. (Electrical ONLY for this question) The program places too much emphasis on speed and not enough emphasis on quality of performance.	___	___	___	___	___
16. Overall I think the program is a good one for the Air Force.	___	___	___	___	___

17. What are the good points of the incentive program?

_____

_____

_____

_____

_____

18. What are the bad points of the incentive program?

_____

_____

_____

_____

_____

19. General Comments:

Appendix AA

Item Statistics on Treatment Evaluation Questionnaire

Treatment Evaluation Questionnaire

Weather Students

Incentive Systems

Item #	Scoring	1(N=66)	2(N=58)	3(N=23)	MSW	P
1	-	2.15	2.26	2.61	1.27	.25
2	+	3.00	3.16	3.35	.52	.11
3	+	3.95	4.02	3.96	1.06	.94
4	+	3.75	3.86	3.87	.83	.72
5	-	2.23	2.40	2.48	.71	.62
6	0	2.53	2.14	2.35	1.32	.17
7	-	2.47	2.22	2.43	1.18	.56
8	-	2.88	2.88	2.65	1.21	.70
9	-	2.56	2.22	2.39	.90	.15
10	0	3.82	3.79	3.13	.95	.01
11	-	3.29	3.50	3.13	.85	.21
12	-	This item only relevant for AER				
13	-	2.66	2.72	2.45	.98	.56
14	-	2.45	2.53	2.78	.95	.37
15	-	3.24	3.14	2.91	1.31	.50
16	+	4.56	4.42	4.13	.59	.07
17	0	3.82	3.43	3.39	1.25	.10
18	0	2.74	2.48	2.39	.82	.15
19	-	3.17	3.33	3.74	1.18	.10
20	-	3.05	2.64	2.30	1.01	.006
21	-	1.91	2.02	2.04	.82	.74
22	-	1.77	1.91	2.00	.74	.53
23	+	3.42	2.98	2.61	1.61	.02
24	-	3.23	2.93	2.50	.96	.01
25	+	4.11	3.91	3.96	.89	.50
26	0	4.09	3.74	3.48	.77	.01
27	+	3.97	3.66	4.00	.85	.12
28	0	3.63	3.41	3.43	1.05	.51
29	+	3.60	3.67	3.30	.67	.18
30	-	2.65	2.33	2.43	.68	.11
31	+	4.30	4.04	3.96	.65	.09
Composite		3.54	3.52	3.51	.18	.96

Treatment Evaluation Questionnaire

Electrical Students

Item #	Scoring	1(N=62)	2(N-120)	3(N=180)	MSW	p
1	-	2.15	1.88	2.52	1.30	.0001
2	+	3.20	3.11	3.23	.74	.53
3	+	3.73	4.04	3.88	.84	.08
4	+	3.80	3.80	3.61	.94	.17
5	-	2.38	2.23	2.63	.92	.002
6	0	2.65	2.42	2.85	1.16	.004
7	-	2.19	1.95	2.34	.99	.004
8	-	2.69	2.66	2.88	.79	.08
9	-	2.23	2.31	2.63	1.01	.005
10	0	3.90	3.98	3.76	.91	.13
11	-	3.37	3.45	3.19	1.08	.10
12	-	3.58	3.34	3.51	1.42	.34
13	-	2.74	2.92	2.99	1.01	.23
14	-	3.13	2.74	3.02	.87	.01
15	-	2.95	3.00	2.86	1.06	.53
16	+	4.08	4.20	4.08	.97	.54
17	0	2.84	3.31	3.07	1.15	.02
18	0	2.84	3.03	2.85	1.00	.28
19	-	3.41	3.65	3.59	1.04	.33
20	-	3.03	2.47	2.89	.88	.0002
21	-	2.16	2.09	2.40	.98	.02
22	-	2.23	1.19	2.40	1.01	.0006
23	+	3.56	3.71	3.64	1.31	.71
24	-	2.98	3.05	3.05	.98	.89
25	+	3.74	3.80	3.75	1.02	.89
26	0	3.60	3.65	3.44	.85	.14
27	+	3.50	3.73	3.67	1.15	.62
28	0	3.76	3.83	3.81	.90	.90
29	+	3.63	3.17	3.35	.93	.01
30	-	2.74	2.79	2.83	.82	.81
31	+	4.15	4.04	3.86	.86	.06
Composite		3.41	3.44	3.33	.18	.007

Treatment Evaluation Questionnaire

Weather Instructors

		Incentive Systems				
Item #	Scoring	1(N=26)	2(N=24)	3(N=17)	MSW	p
1	-	3.12	3.04	3.65	1.96	.35
2	+	2.35	2.42	2.12	.62	.52
3	+	3.69	3.63	3.91	.52	.55
4	+	3.27	3.22	2.35	.81	.004
5	-	3.19	3.17	3.29	1.01	.92
6	0	3.62	3.54	3.82	1.35	.74
7	-	3.73	3.67	4.18	1.01	.24
8	-	3.73	3.63	3.94	.76	.60
9	-	3.42	2.88	3.29	.51	.02
10	-	3.04	2.96	3.41	.75	.23
11	+	2.27	2.54	2.31	1.28	.69
12	-	3.28	3.08	3.65	.81	.15
13	0	4.08	3.59	3.76	.89	.18
14	-	3.15	3.21	3.35	1.14	.84
15	-	AER ONLY				
16	+	2.88	2.87	2.25	1.05	.11
Composite	+	2.77	2.93	2.44	.26	.01

Treatment Evaluation Questionnaire

Electrical Instructors

Item #	Scoring	Incentive Conditions 1(N=35)	2(N=48)	3(N=39)	MSW	p
1	-	4.11	3.75	4.10	1.11	.19
2	+	1.94	2.06	2.18	1.03	.61
3	+	2.71	2.65	2.74	1.01	.90
4	+	2.29	2.46	2.23	.82	.52
5	-	3.29	3.50	3.79	.95	.08
6	0	4.17	4.00	3.95	1.31	.69
7	-	4.21	3.92	4.10	1.02	.58
8	-	3.69	3.48	3.45	1.08	.57
9	-	3.43	3.33	3.42	.63	.83
10	-	3.46	3.35	3.46	1.10	.87
11	+	2.49	2.66	2.53	1.61	.81
12	-	3.94	3.56	3.45	.86	.06
13	0	3.49	3.54	2.95	1.79	.09
14	-	2.77	2.65	2.82	.155	.81
15	-	4.06	3.77	4.08	1.53	.56
16	+	2.27	2.44	2.03	1.34	.26
Composite	+	2.34	2.60	2.35	.26	.03

Appendix BB

Item Statistics on Equity Items

Appendix BB. Means and Standard Deviations of Equity Items: by Course and Condition

WEATHER STUDENTS

Item #	Haw. (N=47)		Trt.1 (N=49)		Trt.2 (N=40)		Trt.3 (N=24)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
1	50.9	37.8	70.7	24.9	51.9	30.8	59.7	34.0
2	47.5	35.8	67.2	22.4	59.5	23.4	62.6	29.0
3	69.0	26.8	77.1	14.9	72.6	25.3	73.9	21.2
4	67.3	21.8	71.0	18.3	74.9	16.8	67.6	22.1
5	1.94	1.02	2.83	.81	2.39	.96	3.00	.83
6	1.85	.91	2.71	.76	2.87	.86	3.38	.71
7	3.62	1.07	3.04	1.20	2.85	1.25	2.00	.93
8	2.00	1.03	2.06	.85	2.13	.92	2.25	.85

ELECTRICAL STUDENTS

Item #	Haw. (N=41)		Trt.1 (N=24)		Trt.2 (N=33)		Trt.3 (N=170)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
1	54.7	33.1	53.8	31.4	52.1	33.2	44.5	33.1
2	59.0	29.5	67.6	19.4	66.7	22.6	58.4	29.4
3	85.0	17.7	77.4	21.4	80.0	18.2	81.7	17.3
4	75.7	20.0	72.4	12.9	76.2	16.9	75.2	18.8
5	2.34	.86	2.63	1.10	2.39	.75	2.76	.84
6	2.51	.82	2.92	.97	2.41	.88	2.83	.79
7	2.88	1.22	3.00	1.42	2.75	1.14	2.87	1.14
8	2.06	.92	2.33	.92	2.28	1.17	2.51	1.02

Appendix CC

Item Statistics on Goal Setting Items

Appendix CC. Means and Standard Deviations of Goal Setting Items, by Course and Condition

WEATHER STUDENTS

Item #	Scoring	Haw(N=48)		Trt1(N=50)		Trt2(N=39)		Trt3(N=24)	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	-	2.29	1.32	1.90	1.13	2.17	1.17	2.54	1.38
2	-	2.37	1.47	2.25	1.39	2.50	1.39	2.74	1.36
3	+	3.52	1.11	3.94	1.02	3.85	1.04	3.83	1.13
4	+	4.96	1.27	5.22	1.08	4.67	1.48	4.29	1.63
5	+	4.50	1.15	4.70	.95	4.51	1.25	4.17	1.44
6	+	4.33	1.34	4.38	1.16	4.31	1.40	3.63	1.56
7	+	58.17	43.91	68.77	38.65	58.82	44.50	78.79	33.54

ELECTRICAL STUDENTS

Item #	Scoring	Haw(N=41)		Trt1(N=26)		Trt2(N=34)		Trt3(N=174	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	-	2.34	1.51	2.07	1.23	2.24	1.19	2.71	1.29
2	-	2.54	1.49	2.58	1.60	2.12	1.23	2.69	1.33
3	+	3.42	1.05	3.35	.98	3.24	.82	3.16	.88
4	+	2.44	1.00	2.65	1.33	2.94	1.04	2.62	1.06
5	+	4.78	1.51	4.73	1.34	4.71	1.40	4.21	1.58
6	+	4.48	1.54	4.50	1.58	5.09	1.16	4.12	1.62
7	+	4.66	1.13	4.42	1.14	4.06	1.28	4.06	1.39
8	+	4.83	1.09	4.39	1.30	4.53	.96	4.18	1.38
9	+	4.27	1.25	4.15	1.26	3.94	1.48	3.93	1.45
10	+	4.02	1.51	3.62	1.24	4.15	1.24	3.82	1.49
11	+	70.14	32.66	71.00	26.98	59.39	34.91	54.71	37.42

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